DOCUMENT RESUME

ED 406 141 SE 059 437

AUTHOR Anderson, Carolyn; Haller, Jackie
TITLE Brain Stretchers, Book 1.
REPORT NO ISBN-0-910974-87-X
PUB DATE 75
NOTE 81p.
AVAILABLE FROM Critical Thinking Press & Software, P.O. Box 448, Pacific Grove, CA 93950-0448 (MP 7.01).
PUB TYPE Guides - Classroom Use - Teaching Guides (For Teacher) (052)

EDRS PRICE MF01 Plus Postage. PC Not Available from EDRS.
DESCRIPTORS *Critical Thinking; Educational Games; Educational Strategies; Elementary Secondary Education; Enrichment Activities; Interdisciplinary Approach; *Learning Activities; *Mathematical Logic; Mathematics Instruction; Motivation; Pattern Recognition; *Problem Solving; Puzzles
IDENTIFIERS *Mathematics Activities

ABSTRACT

This collection of activities is designed to help students develop critical thinking skills. The activities are non-graded and can be used from upper elementary to high school. Reading levels vary from no reading required to very little reading required and can be used effectively with students who are poor readers, bilingual, or at a special education level. These brain stretchers are effective tools that can be used to assist teachers in the individualization process, encourage independent work, foster motivation, and provide enrichment. The activities are organized in three sections: (1) Patterns; (2) Logic; and (3) Puzzles. Seven stretchers are provided in the pattern recognition section and use topics such as number sequences and magic squares. The logic section provides six activities that involve number and word concepts. The puzzle section includes seven geometric, maze, and line puzzles. Answer keys are included. (DDR)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

BRAIN STRETCHERS

BOOK 1

PERMISSION TO REPRODUCE AND DISSEMINATE THIS MATERIAL IN OTHER THAN PAPER COPY HAS BEEN GRANTED BY

S. Baker

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

X This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

CRITICAL THINKING PRESS & SOFTWARE

CAROLYN ANDERSON
JACKIE HALLER

ED 406 141

SE 059 437

BEST COPY AVAILABLE

BRAIN STRETCHERS
Book 1

Carolyn Anderson and Jackie Haller

© 1975
CRITICAL THINKING PRESS & SOFTWARE
(formerly Midwest Publications)
P.O. Box 448 • Pacific Grove • CA 93950-0448
Phone 800-458-4849 • FAX 408-372-3230
ISBN 0-910974-87-X
Printed in the United States of America
Reproduction rights granted for single-classroom use only.

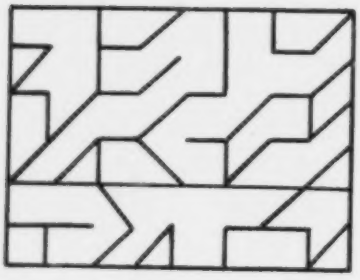
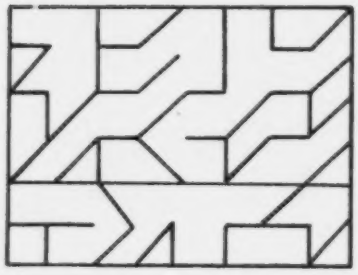
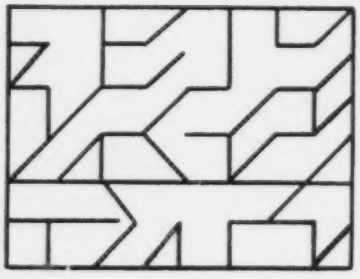
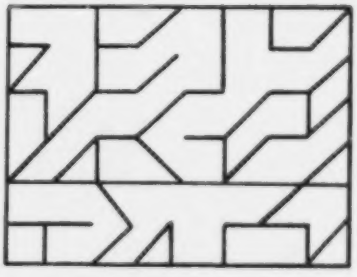
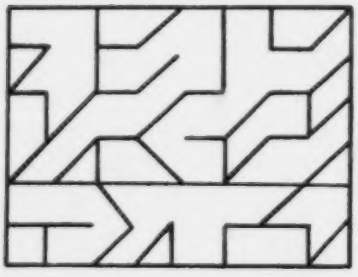
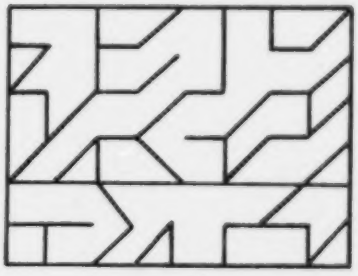
FOREWARD

BRAIN STRETCHERS offers a wide variety of 60 pages of puzzles to help develop critical thinking in your classroom. The materials are roughly middle school complexity but since they are non graded, they may be used anywhere from upper elementary to high school, depending on student needs. Reading levels vary from no read to lo read which will help poor readers, bilinguals, lower verbals and some special eds. The puzzles may be used for individualization, independent work, motivation and enrichment.

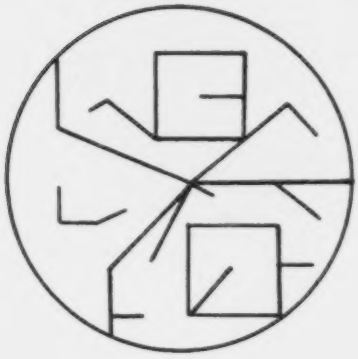
Table of Contents

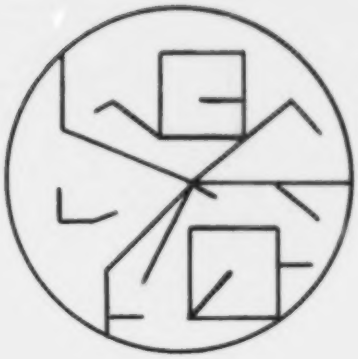
		Page
I.	Patterns	
	A. See What's Different	1-3
	B. Series	4-6
	C. Magic Squares	7-9
	D. Covering the Dots	10-12
	E. Number Fill-in	13-15
	F. Connect the Numbers	16-18
	G. Addition Cross-number	19-21
II.	Logic	
	A. Find the Operation	22-24
	B. Find the Path	25-27
	C. Scrambled Words	28-30
	D. Make a Number	31-33
	E. Separate Consecutives	34-36
	F. Decoding	37-39
III.	Puzzles	
	A. Number Pictures	40-42
	B. Criss-cross Numbers	43-45
	C. Geometric Pictures	46-48
	D. Number Mazes	49-51
	E. Hidden Pictures	52-54
	F. Separating Lines	55-57
	G. Target Puzzles	58-60
IV.	Answer Sheets	1A-60A

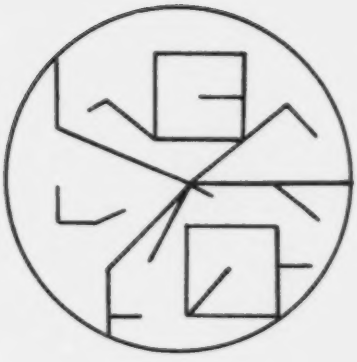
Which one is different?

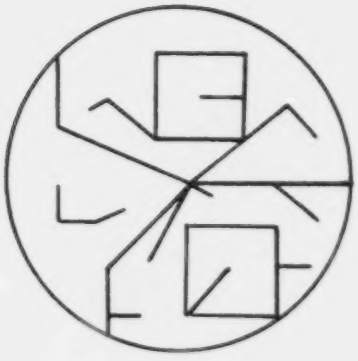







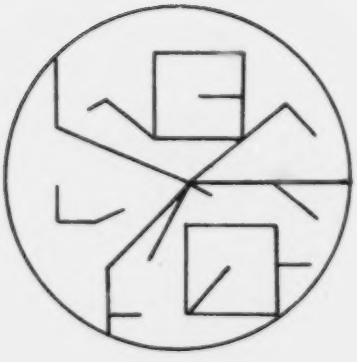
Which one is different?

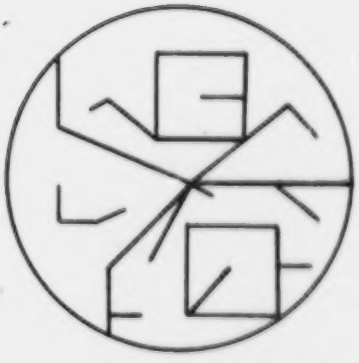












7

Which one is different?

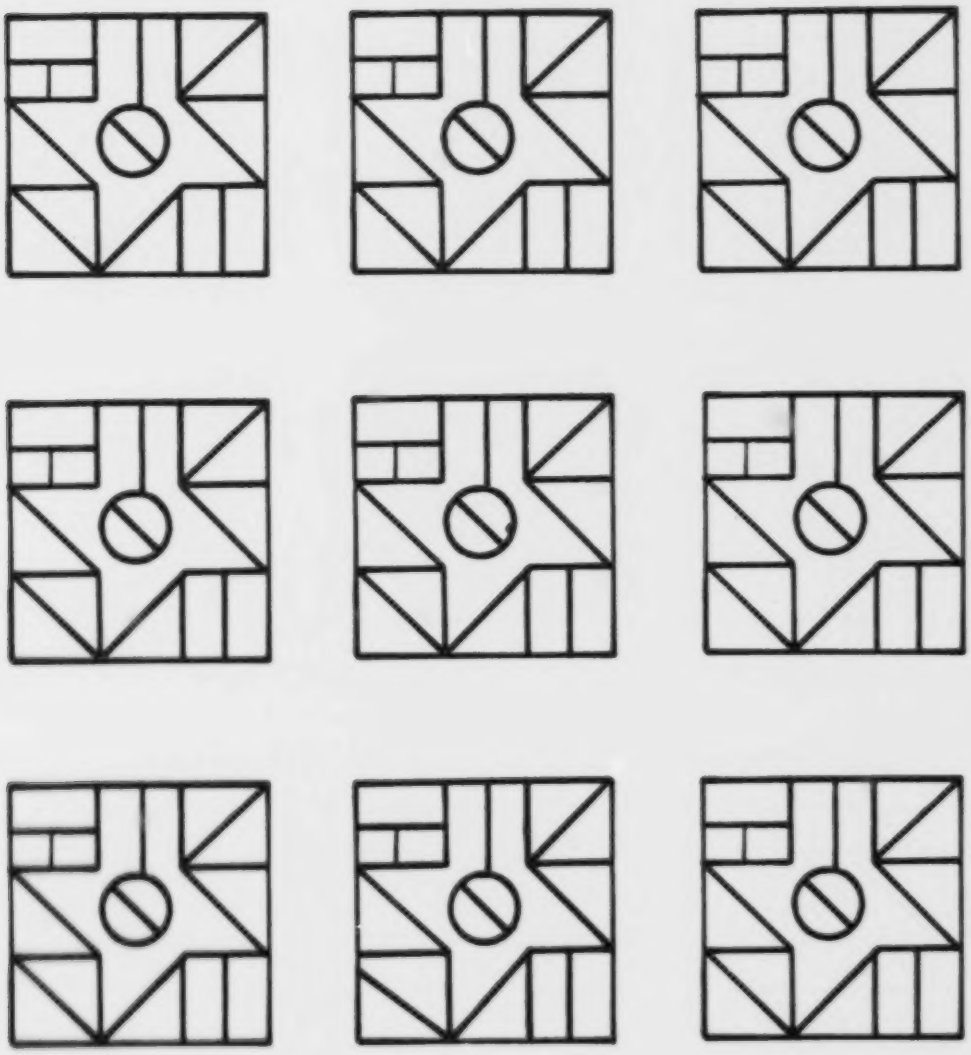


Figure out the pattern then write the next 3 terms in the series.

1. 1, 2, 6, 24, 120, ___, ___, ___

2. 15, 20, 13, 18, 11, ___, ___, ___

3. 0, 0, 4, 9, 8, 18, 12, 27, ___, ___, ___

4. 2, 3, 5, 8, 9, 11, 14, 15, ___, ___, ___

5. 3, 4, 6, 11, 12, 14, 20, 21, 23, 30, ___, ___, ___

6. 1, 4, 9, 16, 25, ___, ___, ___

7. 1, 8, 27, 64, 125, ___, ___, ___

8. 1, 2, 2, 6, 3, 12, 4, 20, 5, ___, ___, ___

9. 10, 1, 11, 2, 13, 4, 17, 8, 25, 7, ___, ___, ___

10. 98, 72, 77, 49, 54, 20, ___, ___, ___

Figure out the pattern then write the next 3 terms in the series.

1. 0, 2, 5, 10, 17, 28, 41, 58, ___, ___, ___

2. 1, 2, 4, 7, 8, 10, 25, 26, 28, 79, ___, ___, ___

3. 2, 3, 10, 12, 13, 20, 21, ___, ___, ___

4. 2, 3, 4, 5, 6, 7, 8, 80, 9, 90, 10, ___, ___, ___

5. 0, 2, 4, 0, 3, 6, 0, 4, 8, 0, 5, 10, ___, ___, ___

6. 50, 40, 31, 23, 16, ___, ___, ___

7. 33, 34, 40, 41, 42, 43, 44, 100, 101, 102, ___, ___, ___

8. J, F, M, A, M, J, J, A, S, ___, ___, ___

9. A, Z, B, Y, C, X, D, W, E, V, ___, ___, ___

10. S, H, I, U, X, N, T, D, E, R, E, ___, ___, ___

Figure out the pattern then write the next 3 terms in the series.

1. 2, 3, 5, 7, 11, 13, ___, ___, ___

2. 1, 1, 4, 36, 576, 14,300, ___, ___, ___

3. 3, 6, 12, 15, 30, 33, 66, ___, ___, ___

4. 1, 5, 4, 13, 9, 25, 16, 41, 25, ___, ___, ___

5. 1, 2, 6, 12, 36, 72, ___, ___, ___

6. $^{1}/_{2}$, $^{1}/_{3}$, $^{2}/_{9}$, $^{4}/_{27}$, $^{8}/_{81}$, ___, ___, ___

7. $1\ ^{1}/_{6}$, $1\ ^{1}/_{2}$, $1\ ^{5}/_{6}$, $2\ ^{1}/_{6}$, $2\ ^{1}/_{2}$, ___, ___, ___

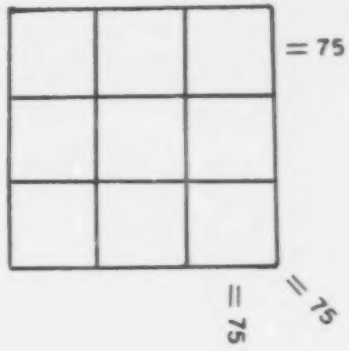
8. 1, $^{1}/_{2}$, $^{1}/_{6}$, $^{1}/_{24}$, $^{1}/_{120}$, ___, ___, ___

9. 5, $1\ ^{2}/_{3}$, 8, 2, 12, $2\ ^{2}/_{5}$, 17, $2\ ^{5}/_{6}$, 23, $3\ ^{2}/_{7}$, ___, ___, ___

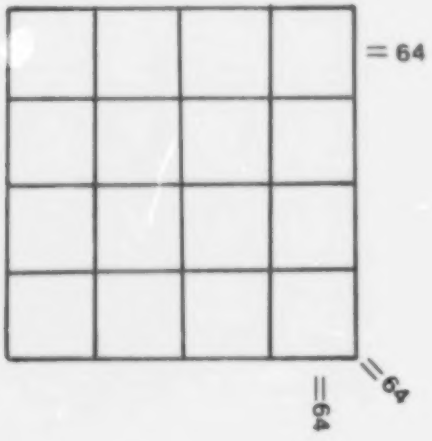
10. .101, .1001, .10001, ___, ___, ___

11

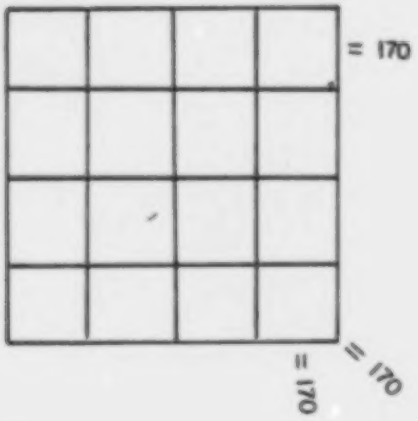
This puzzle is called a magic square! It's magic because the numbers in each row, each column, and each of the two diagonals add up to the same number. In the 3 by 3 square below you are to use the numbers 5, 10, 15, 20, 25, 30, 35, 40, and 45. Use each number once and only once. The sum of the rows, columns, and diagonals should be 75!!



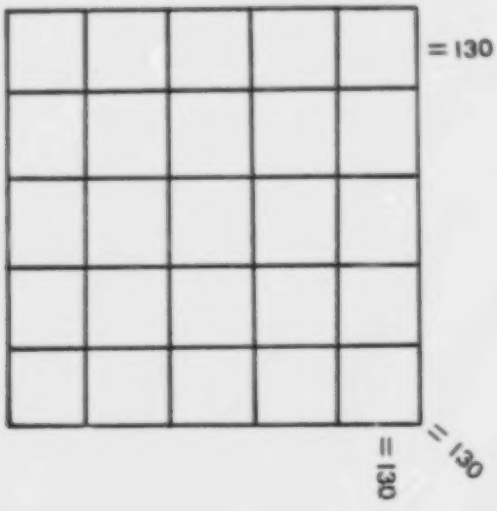
This is a 4 by 4 magic square. You are to use the odd numbers from 1 to 31 (1, 3, 5, 7, ..., 31). Use each number once and only once. Each column, each row, and each of the two diagonals should add up to 64!!



This puzzle is called a magic square! It's magic because the numbers in each row, each column, and each of the two diagonals add up to the same number. In the 4 by 4 below you are to use the multiples of 5 from 5 to 80 (5, 10, 15, ..., 75, 80). The magic sum of the rows, columns, and diagonals is 170!!

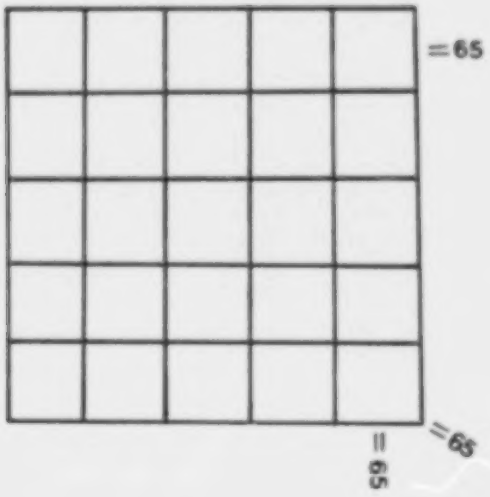


This is a 5 by 5 magic square. You are to use the even numbers from 2 through 50 (2, 4, 6, ..., 48, 50). Use each number once and only once. The magic sum for the rows, columns, and diagonals is 130!!



13

The magic sum in this 5 by 5 magic square is 65! You are to use the numbers from 1 through 25 (1, 2, ..., 25).

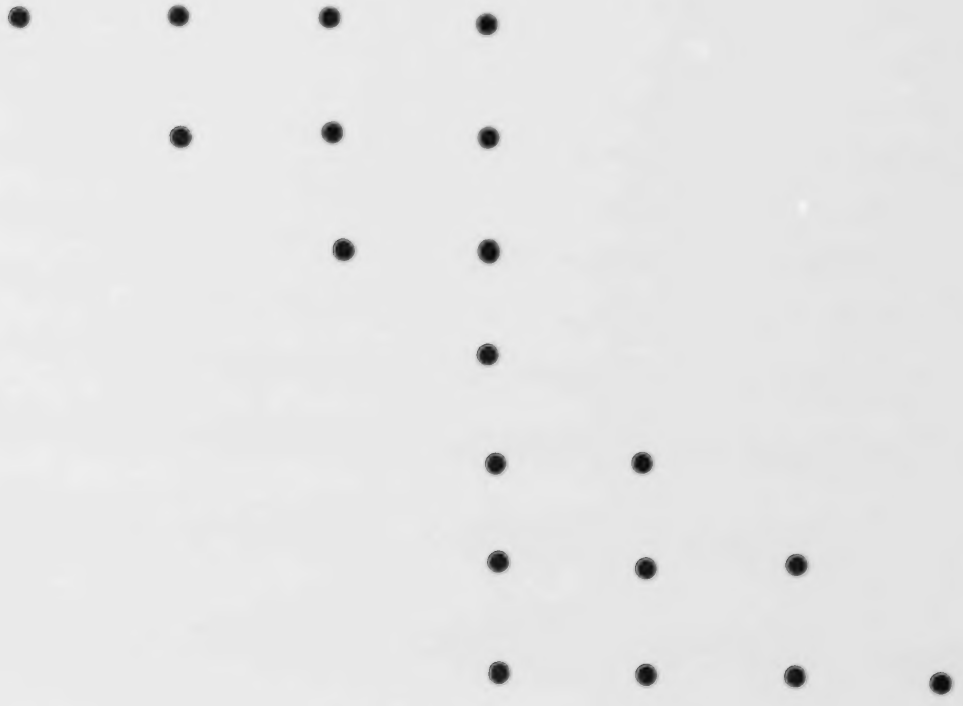


This magic square is an 8 by 8. It's a little tougher than a 5 by 5 so some of the numbers have been put in to get you started. You are to use the numbers from 1 through 64 (1, 2, 3, ..., 63, 64). The magic sum is 260!

64			61	60			57	=260
9		54	12	13	51	50	16	
		46			43			
40	26	27		36	30	31	33	
32			29	28			25	
		22	44		19			
			52			10		
8			5	4			1	
								=260
								260

Without lifting your pencil, see if you can cross each dot below using five and only five lines!! Each time you make a corner, you make a new line and you may cover a line only once.

Cover the dots below using only six lines. You may not lift your pencil and each line may be covered only once.



Without lifting your pencil, see if you can cross each dot below using seven and only seven lines. You may touch each dot only once and you may not retrace a line.

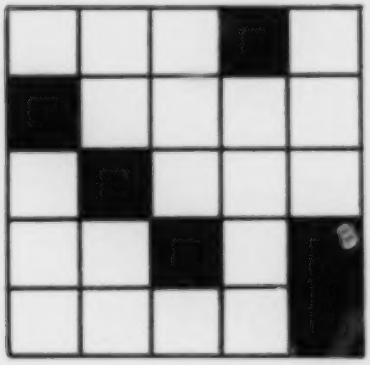
You are to cover each of the dots below using exactly eight lines. There are three rules to follow: touch each dot only once, do not lift your pencil, and do not trace a line more than once!

Using only eight lines, see if you can cover the dots below. Here are the rules: do not lift your pencil, trace each line only once, and touch each dot only one time!

The dots below can be covered using seven and only seven lines. See if you can do it without lifting your pencil, without tracing a line more than once, and without touching a dot more than once.

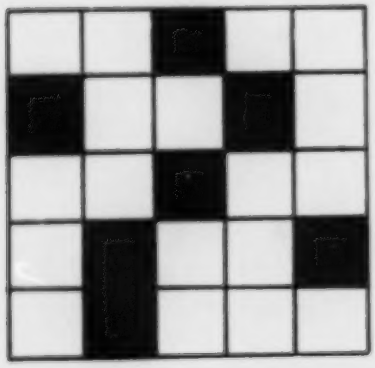
Given the 11 numbers below, see where they would go in the cross-number puzzle.

24	125	3525
25	132	4335
54	251	5435
	321	
	451	



Below you are given 12 numbers. See if you can fit them into the cross-number puzzle.

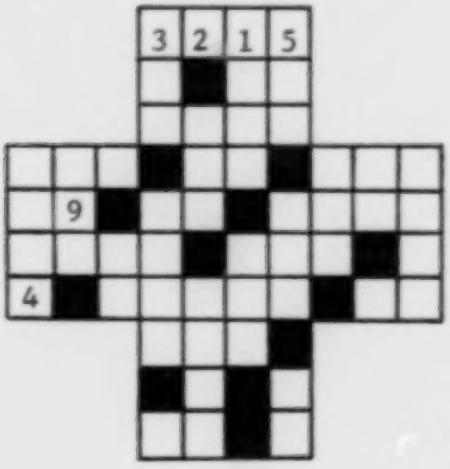
24	43	256	435
27	46	322	756
32	52	324	
	53		



All 30 of the numbers below will fit into the cross-number puzzle. To get you started one number has been put in for you. See how long it takes you to put in the other 29!!

11
12
15
24
39
47
66
92
93

213
291
296
368
425

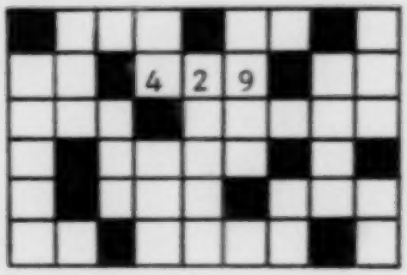


561
573
721
723
827
912
1375
1465
2163
3215
4128
6813
8324
8671
8963
67825

In the puzzle below you are to fill in the 23 numbers written down each side. One number has been placed for you. See if you can fill in the rest.

22
27
32
54
81
87
92

147
191
429
545

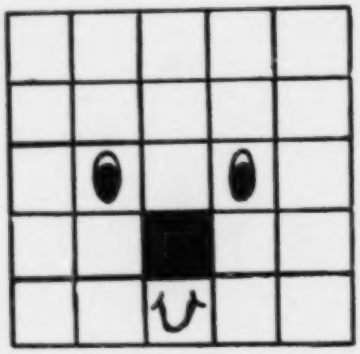


576
629
635
742
918
3971
4531
5162
8691
21352
28321
87366

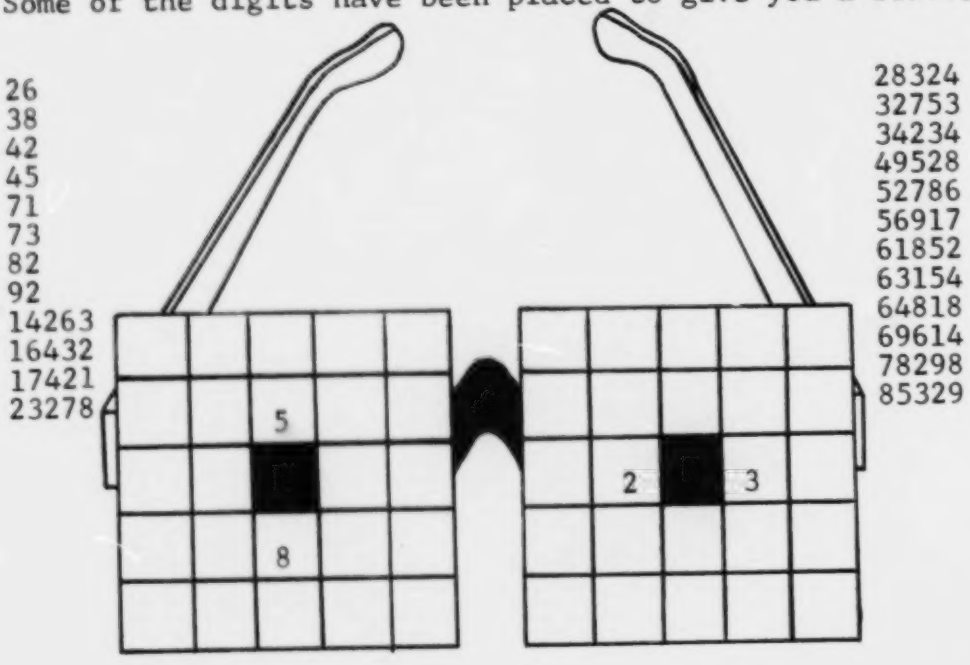
19

There are only 13 numbers that are to be placed in the cross-number puzzle below.

23	49	81	15463
32	59	89	35781
36	74	726	36178
			69215

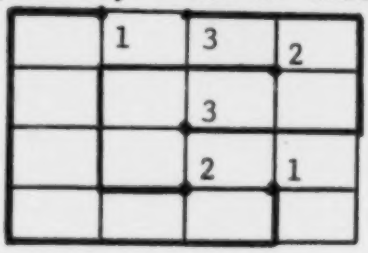


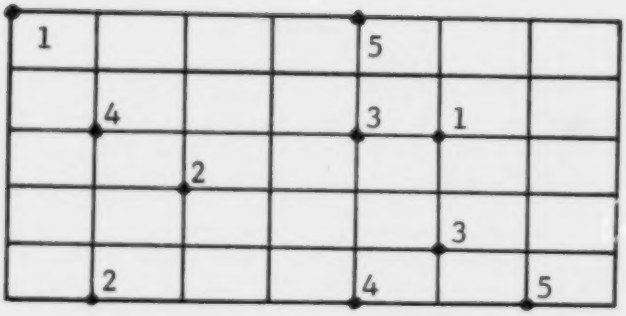
In the very special sun glasses below you are to fill in 24 numbers. Some of the numbers may be filled in automatically as you fill in the ones around them. Some of the digits have been placed to give you a start.

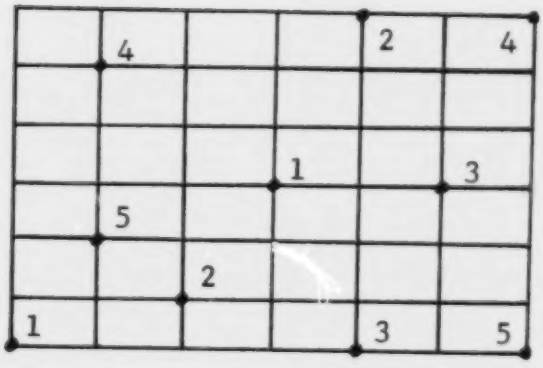


In the pictures below there are two of each number. Can you connect them by only moving along the lines of the grid? No path may touch or intersect another.

Example:

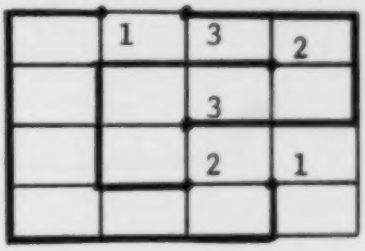


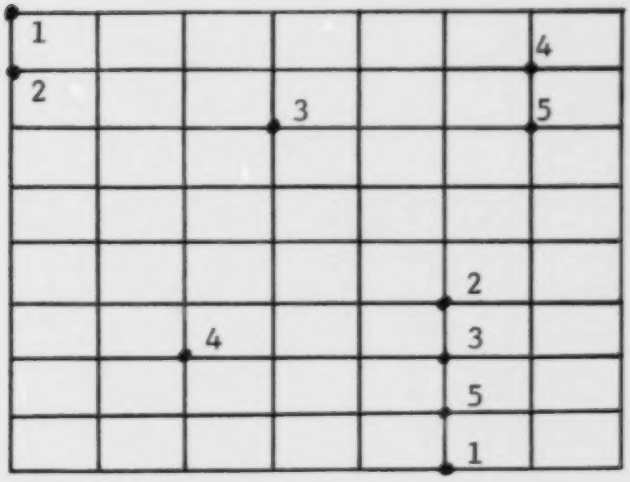


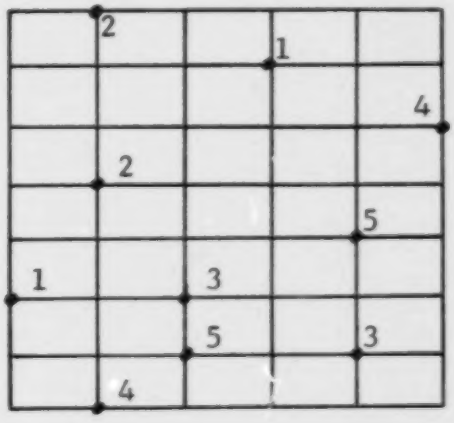


In the picture below there are two of each number. Can you connect them by only moving along the lines of the grid? No path may touch or intersect another.

Example:

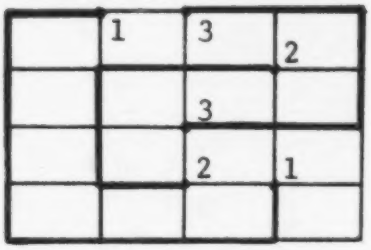


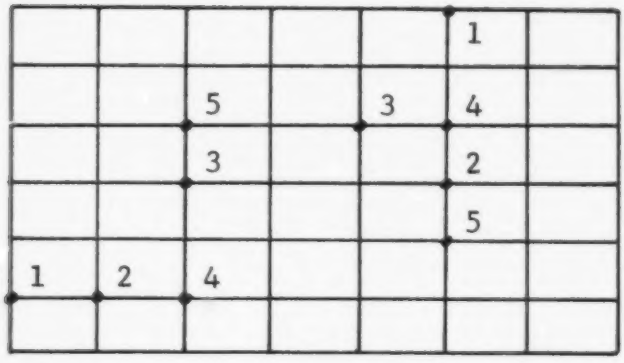


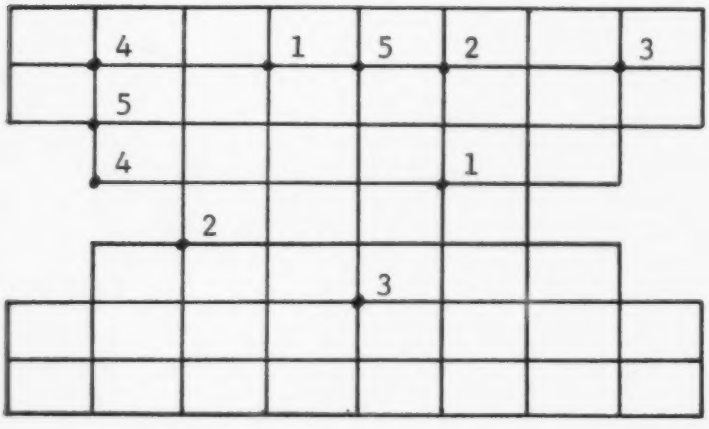


In the pictures below there are two of each number. Can you connect them by only moving along the lines of the grid? No path may touch or intersect another.

Example:

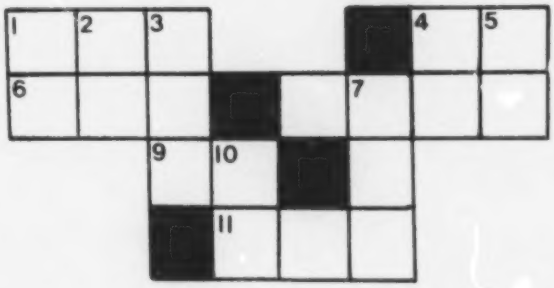






In this cross-number puzzle the definitions for the blanks give you the sum of the numbers that fill the squares. That is, the numbers that fill #1 across must add up to 9. There is only one rule--No zeros are allowed!

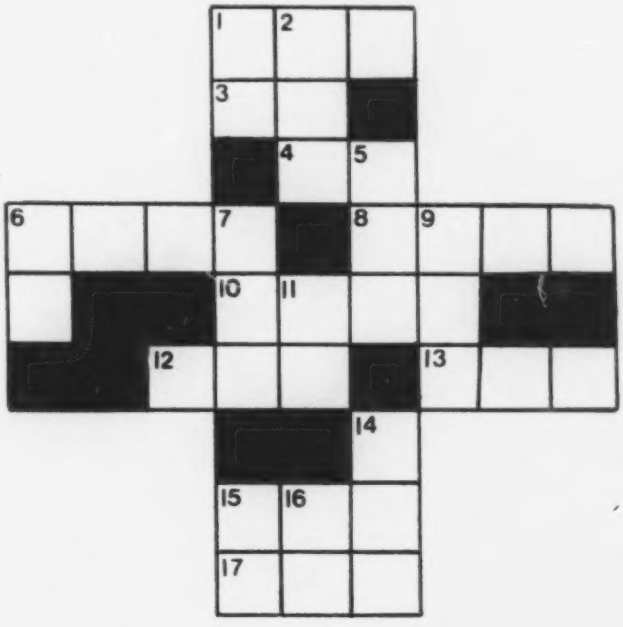
ACROSS
1. 9
4. 13
6. 14
7. 11
9. 7
11. 15



DOWN
1. 9
2. 5
3. 15
4. 7
5. 9
7. 14
10. 6

This is an addition cross-number. The numbers you use to fill the squares must add up to the number given in the definition. There is only one digit allowed per square, but zeros are not acceptable.

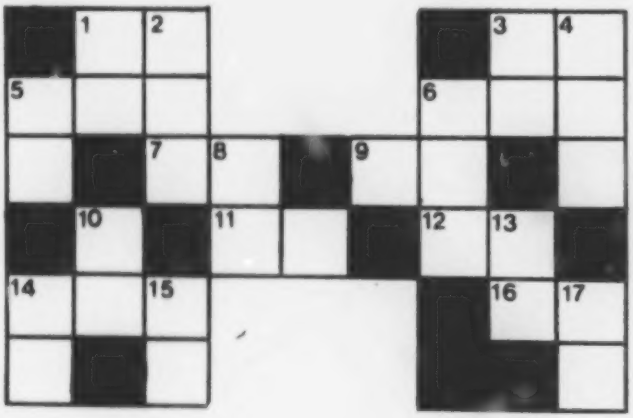
ACROSS
1. 6
3. 5
4. 9
6. 7
8. 8
10. 17
12. 16
13. 5
14. 7
15. 15
17. 10



DOWN
1. 6
2. 10
5. 7
6. 8
7. 18
9. 7
11. 13
14. 18
15. 9
16. 5

The numbers you put in the squares below must add up to the number given in the definition. That is, the numbers in the two blanks for #1 across must add up to eight. See how long it takes you to fill the puzzle!! Do Not use zero!

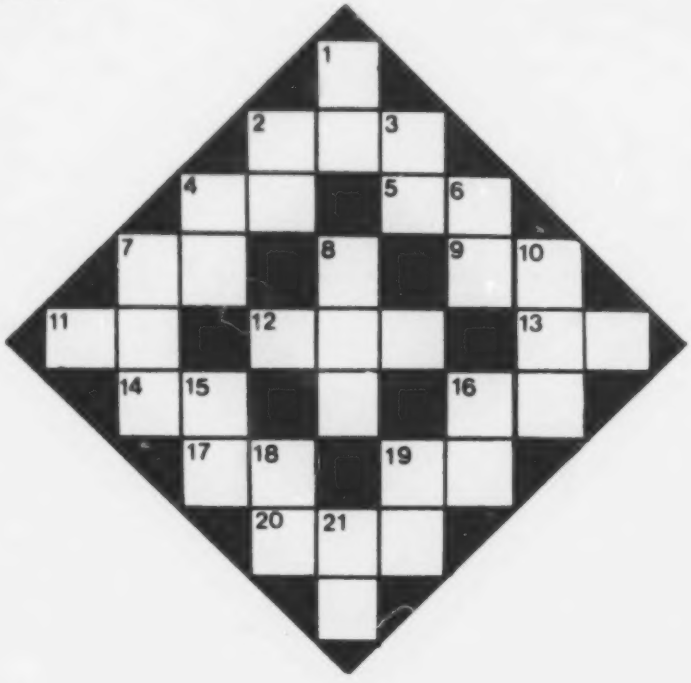
ACROSS
1. 8
3. 2
5. 12
6. 16
7. 18
9. 10
11. 15
12. 8
14. 19
16. 11



DOWN
1. 15
2. 11
3. 6
4. 17
5. 7
6. 5
8. 16
10. 16
13. 12
14. 9
15. 3
17. 8

Fill the blanks so that the sum of the numbers you use matches the number given in the definition. No zeros are allowed.

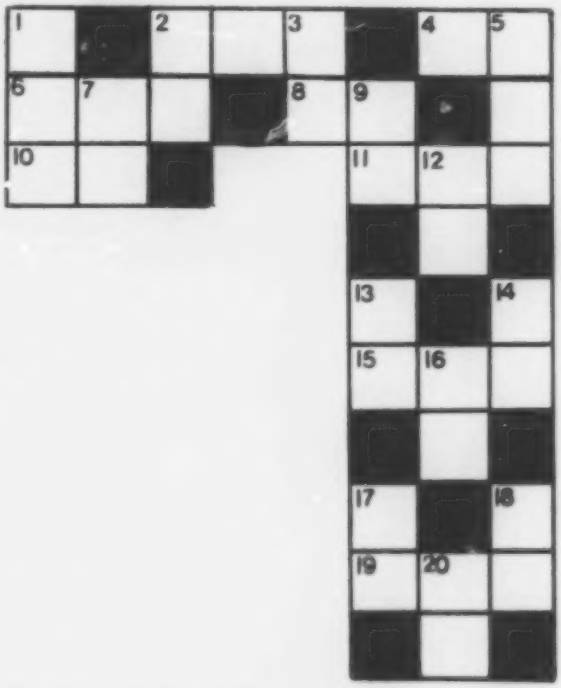
ACROSS
2. 12
4. 7
5. 10
7. 8
9. 10
11. 3
12. 20
13. 4
14. 18
16. 10
17. 14
19. 9
20. 16



DOWN
1. 10
2. 4
3. 9
4. 9
6. 9
7. 13
8. 4
10. 14
15. 17
16. 11
18. 13
19. 6
21. 14

25

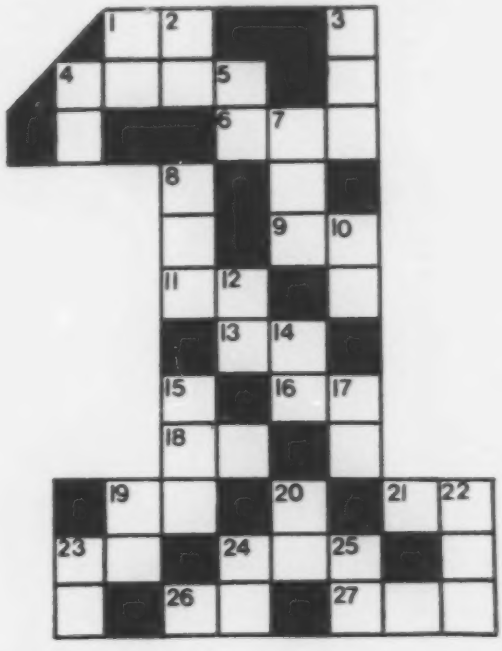
In an addition cross-number puzzle you are to fill the squares so the sum of the numbers you use is the same as the number given in the definition. Only one number per square and no zeros!



ACROSS
2. 19
4. 9
6. 19
8. 9
10. 2
11. 11
15. 14
19. 27

DOWN
1. 10
2. 18
3. 12
5. 7
7. 4
9. 8
12. 14
13. 18
14. 4
16. 7
17. 12
18. 13
20. 14

Fill the squares so the sums of the numbers match the sums given in the definitions. Zeros are not allowed!



ACROSS
1. 2
4. 16
6. 19
9. 7
11. 15
13. 10
16. 10
18. 15
19. 3
21. 11
23. 12
24. 3
26. 10
27. 22

DOWN
1. 6
2. 9
3. 27
4. 10
5. 8
7. 6
8. 9
10. 9
12. 14
14. 6
15. 8
17. 16
19. 9
20. 8
22. 23
23. 8
24. 7
25. 6

1. Place one add sign and two subtract signs between the numbers to make the left side of the equation equal 15.

   4 2 4 1 2 4 = 15

2. Place one add sign and one subtract sign between the numbers to make the left side of the equation equal 16.

   6 4 2 3 2 = 16

3. Place two subtract signs and one add sign between the numbers to make the left side of the equation equal 14.

   9 6 3 2 2 1 = 14

4. Place two add signs and two subtract signs between the numbers to make the left side of the equation equal 12.

   2 4 3 1 2 3 = 12

5. Place two add signs and two subtract signs between the numbers to make the left side of the equation equal 24.

   8 6 2 4 4 2 = 24

6. Place two add signs and two subtract signs between the numbers to make the left side of the equation equal 41.

   9 3 6 2 3 1 = 41

7. Place one add sign and two subtract signs between the numbers to make the left side of the equation equal 8.

   1 2 1 2 1 2 = 8

8. Place two add signs and one subtract sign between the numbers to make the left side of the equation equal 6.

   3 2 1 3 2 1 = 6

1. Place one add sign and two division signs between the numbers to make the left side of the equation equal 6.

   3 2 1 1 2 3 = 6

2. Place two add signs and one division sign between the numbers to make the left side of the equation equal 15.

   1 2 3 3 2 1 = 15

3. Place two add signs and two subtraction signs between the numbers to make the left side of the equation equal 0.

   6 5 4 3 2 = 0

4. Place one subtraction sign and one division sign between the numbers to make the left side of the equation equal 10.

   12 6 4 3 2 = 10

5. Place one add, one subtraction, and one division sign between the numbers to make the left side of the equation equal 19.

   1 2 3 4 5 6 = 19

6. Place one subtraction sign and one division sign between the numbers to make the left side of the equation equal 15.

   4 2 4 4 2 8 = 15

7. Place one add, one subtraction, and one division sign between the numbers to make the left side of the equation equal 61.

   6 5 4 4 5 6 = 61

8. Place one add, two subtraction, and one division sign between the numbers to make the left side of the equation equal 3.

   2 3 4 4 3 2 = 3

1. Place one add, two multiplication, and one division sign between the numbers to make the left side of the equation equal 4.

   3 2 1 2 2 = 4

2. Place two add signs and one division sign between the numbers to make the left side of the equation equal 9.

   4 2 4 2 2 = 9

3. Place two subtract, one multiplication, and two division signs between the numbers to make the left side of the equation equal 13.

   24 12 6 3 2 1 = 13

4. Place one add, one subtract, and one division sign between the numbers to make the left side of the equation equal 32.

   16 8 4 2 1 2 = 32

5. Place three add signs and one division sign between the numbers to make the left side of the equation equal 5.

   4 2 2 4 2 4 = 5

6. Place two add, one subtraction, and one division sign between the numbers to make the left side of the equation equal 21.

   24 12 6 4 2 2 = 21

7. Place one add, one multiplication, and one division sign between the numbers to make the left side of the equation equal 50.

   16 8 4 2 4 = 50

8. Place one subtraction and three multiplication signs between the numbers to make the left side of the equation equal 36.

   24 12 6 3 2 2 = 36

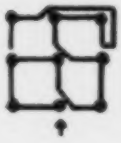
Each dot represents a warehouse. A watchman must walk each of the 32 paths between the warehouses. Can you see how he did it only going over 4 paths twice? Therefore, when he finished his walk, he would have walked over 36 paths. (diagonal paths are excluded)

Example: There are 12 paths between the warehouses but the watchman will have to walk over 14 paths to complete his walk.

Can you see how the watchman walked over the following 34 paths only going over 4 paths twice.

Each dot represents a warehouse. A watchman must walk each of the 24 paths between the warehouses. Can you see how he did it only going over 3 paths twice? Therefore, when he finished his walk, he would have walked over 27 paths. (diagonal paths are excluded)

Example: There are 12 paths between the warehouses but the watchman will have to walk over 14 paths to complete his walk.

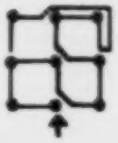


Can you see how the watchman walked over the following 31 paths only going over 4 twice?

31

Each dot represents a warehouse. A watchman must walk each of the 34 paths between the warehouses. Can you see how he did it only going over 4 paths twice? Therefore, when he finished his walk, he would have walked over 38 paths. (diagonal paths are excluded)

Example: There are 12 paths between the warehouses but the watchman will have to walk over 14 paths to complete his walk.



Can you see how the watchman walked over the following 37 paths only going over 5 paths twice?

Try to unscramble the following words. Each one of them is a number (one, eleven, etc.). Careful, some need hyphens.

1. reoz
2. onneettyw
3. thryit
4. fwoytift
5. ghytie
6. fytfi
7. tgeih
8. netyin
9. ddrenhu
10. ewtvel
11. txysi
12. eeelnv
13. rtofy
14. eeennnti
15. tttwwenyo
16. ffoorruty
17. notyneeni
18. vense
19. tsevyne

Unscramble the following words which are vocabulary used with whole numbers.

1. dtorpuc
2. ums
3. lltimpuy
4. neiqotut
5. trabusdenh
6. derremnia
7. lttao
8. roacft
9. mnednui
10. dad
11. sivdiion
12. rwgbniroo
13. btcaruts
14. dddiiven
15. aedndd
16. svoirdi

Unscramble the following words which you would hear being used in a math class

1. iuntngco
2. rpenetc
3. sste
4. raiontcf
5. ungeasmri
6. tttaisssic
7. megeoyrt
8. cidlasme
9. daniotid
10. atqeuonsi
11. citrem tesmys
12. trtonicabus
13. obarptlyiib
14. oarit
15. iodinsiv
16. ningourd
17. pproroniot
18. gciol

You may use any of the four operations in the puzzles below, but you may use only the given number and you must use it exactly the number of times allowed. Use parentheses if necessary.

1. Use 5-1s to make 2!

2. Use 4-2s to make 10!

3. Use 5-3s to make 3!

4. Use 4-4s to make 20!

5. Use 4-5s to make 80!

6. Use 7-6s to make 5!

7. Use 5-7s to make 49!

8. Use 4-8s to make 1!

9. Use 3-9s to make 3!

10. Use 5-10s to make 11!

You may use any of the four operations in the puzzles below, but you may use only the given number and you must use it exactly the number of times allowed. Use parentheses if necessary.

1. Use 4-2s to make 5!

2. Use 3-6s to make 30!

3. Use 4-9s to make 100!

4. Use 5-8s to make 0!

5. Use 6-1s to make 3!

6. Use 7-4s to make 9!

7. Use 5-10s to make 91!

8. Use 4-7s to make 8!

9. Use 5-5s to make 6!

10. Use 7-3s to make 30!

You may use any of the four operations in the puzzles below, but you may use only the given numbers and you must use them exactly the number of times allowed. Use parentheses if necessary.

1. Use 2-3s and 2-2s to make 11!

2. Use 2-1s and 1-2 to make 3!

3. Use 2-5s and 3-7s to make 4!

4. Use 2-4s and 2-3s to make 9!

5. Use 3-4s and 1-1 to make 2!

6. Use 3-4s and 3-8s to make 2!

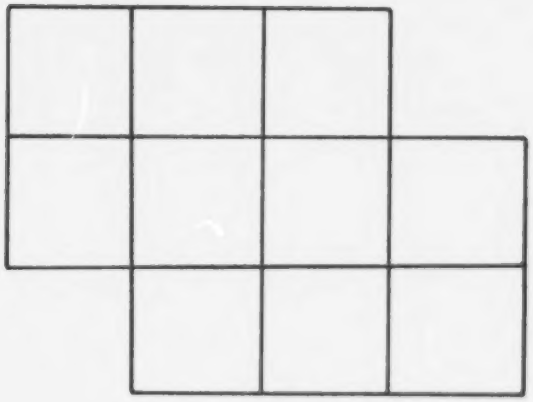
7. Use 2-5s and 2-2s to make 7!

8. Use 3-9s and 4-8s to make 1!

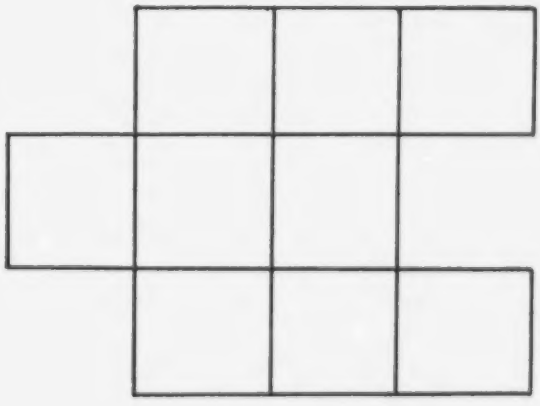
9. Use 4-3s and 3-10s to make 30!

10. Use 6-5s and 4-3s to make 2!

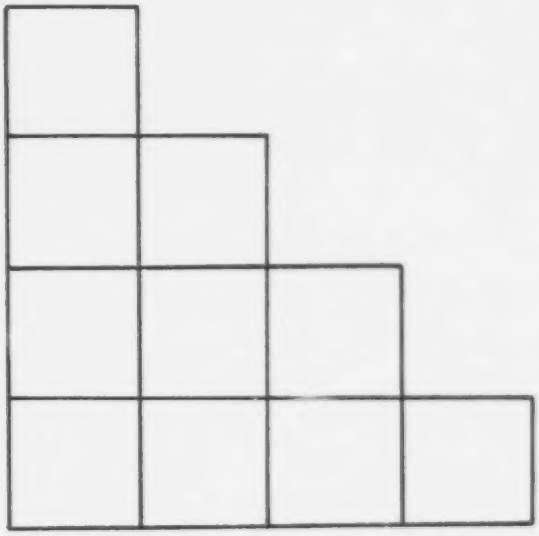
Place the numbers 0-9 in the following 10 boxes such that no two consecutive numbers are placed next to each other horizontally, vertically, or diagonally.



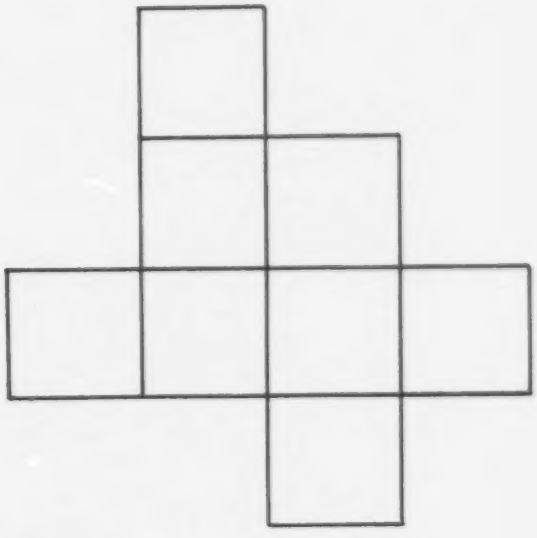
Place the numbers 1-9 in the following 9 boxes such that no two consecutive numbers are placed next to each other horizontally, vertically, or diagonally.



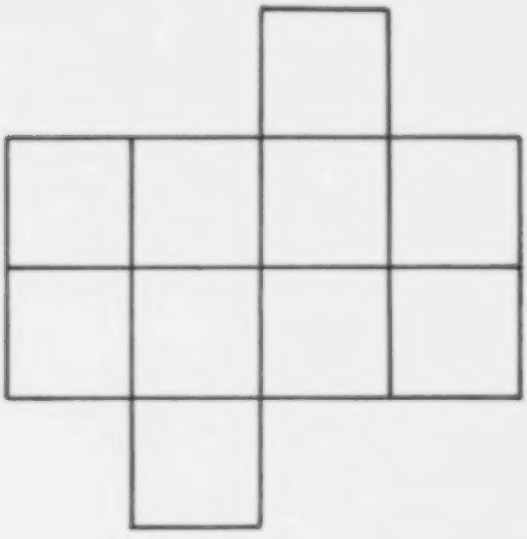
Place the numbers 1-10 in the following 10 boxes such that no two consecutive numbers are placed next to each other horizontally, vertically, or diagonally.



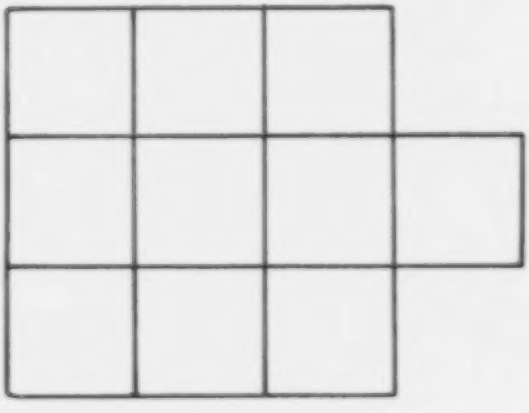
Place the numbers 1-8 in the following 8 boxes such that no two consecutive numbers are placed next to each other horizontally, vertically, or diagonally.



Place the numbers 1-10 in the following 10 boxes such that no two consecutive numbers are placed next to each other horizontally, vertically, or diagonally.



Place the numbers 1-10 in the following 10 boxes such that no two consecutive numbers are placed next to each other horizontally, vertically, or diagonally.



Look carefully at the problems below. You are to replace the letters or symbols with numbers which make the problem correct. In other words, you are to break the code used to write each individual problem!

```
  A D A B
    C B B
+   C A A
-------
  A B D A
```

```
  A B A B
- C C D
-------
    B A C
```

```
  ! @ ! @
- * * @ !
---------
  * * # *
```

```
      Y Z
x     Z
---------
    X Y Z
```

```
      H A
x     H A
---------
      A E
    H A
---------
    H E E
```

```
        ? &
      -----
& ) ¢ &
      &
      ---
      $ &
      $ &
      ===
```

You are to break the code used to write each individual problem below. That is, you are to replace each letter or symbol with a number which will make the problem correct.

```
  E F G
    G F
+ G E F
-------
B D F G
```

```
  A B C B
- D E A C
---------
  E A D D
```

```
    ? * %
x   $ !
-------
    ! $ *
  $ ? *
-------
  $ % $ *
```

```
    V W
x   G T
-------
    I W
  V W
-------
  T V W
```

```
        Z Z
    -------
Y Z | Z X W
      Z W
      ---
        Z W
        ---
        Z W
        ===
```

```
          & @ &
      -----------
& # | ç & ç #
      ç #
      ---
        & ç
        & #
        ---
          ç #
          ---
          ç #
          ===
```

Study the problems below. You are to replace the letters or symbols with numbers which make the problem correct. That is, you are to break the code used to write each individual problem.

```
  A B C D
    E B C
      C D
+   E A C C
  ---------
  C D B D
```

```
    R S T
  - R U
  -------
    R R R
```

```
  L M N P
  M N M L
+   M P N
  ---------
L L P N M
```

```
        ? : "
    x   ° " "
  -------------
        " " "
      " " "
  : ° ° "
  -------------
  : ° ° " " "
```

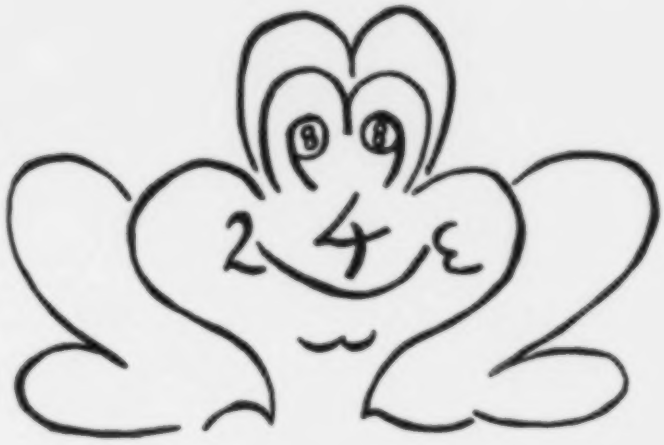
```
        ! *
  √-------
    ! ? ?
```

```
          J I H
  F G ⌐F H F I
      F G
      -----
        J F
          H
        -----
        J F I
        J F I
        =====
```

NUMBER PICTURES--Here are some hints: the loops on nines are empty (9), but sixes will have a dot or number inside their loop (6). Fives have straight spines (5), but twos are curved (2).

Add the numbers on the frog to see how many jumps he takes per minute!

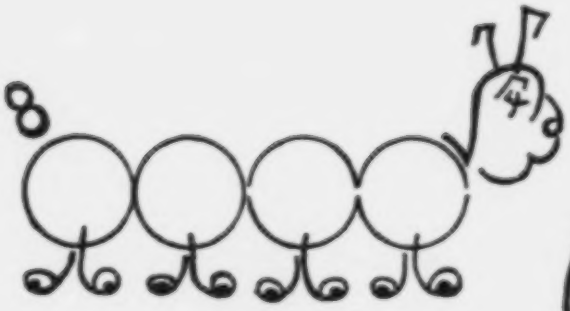
_____



SUM A SUN POSIES: Add the leaves and petals to get the surprising sum!

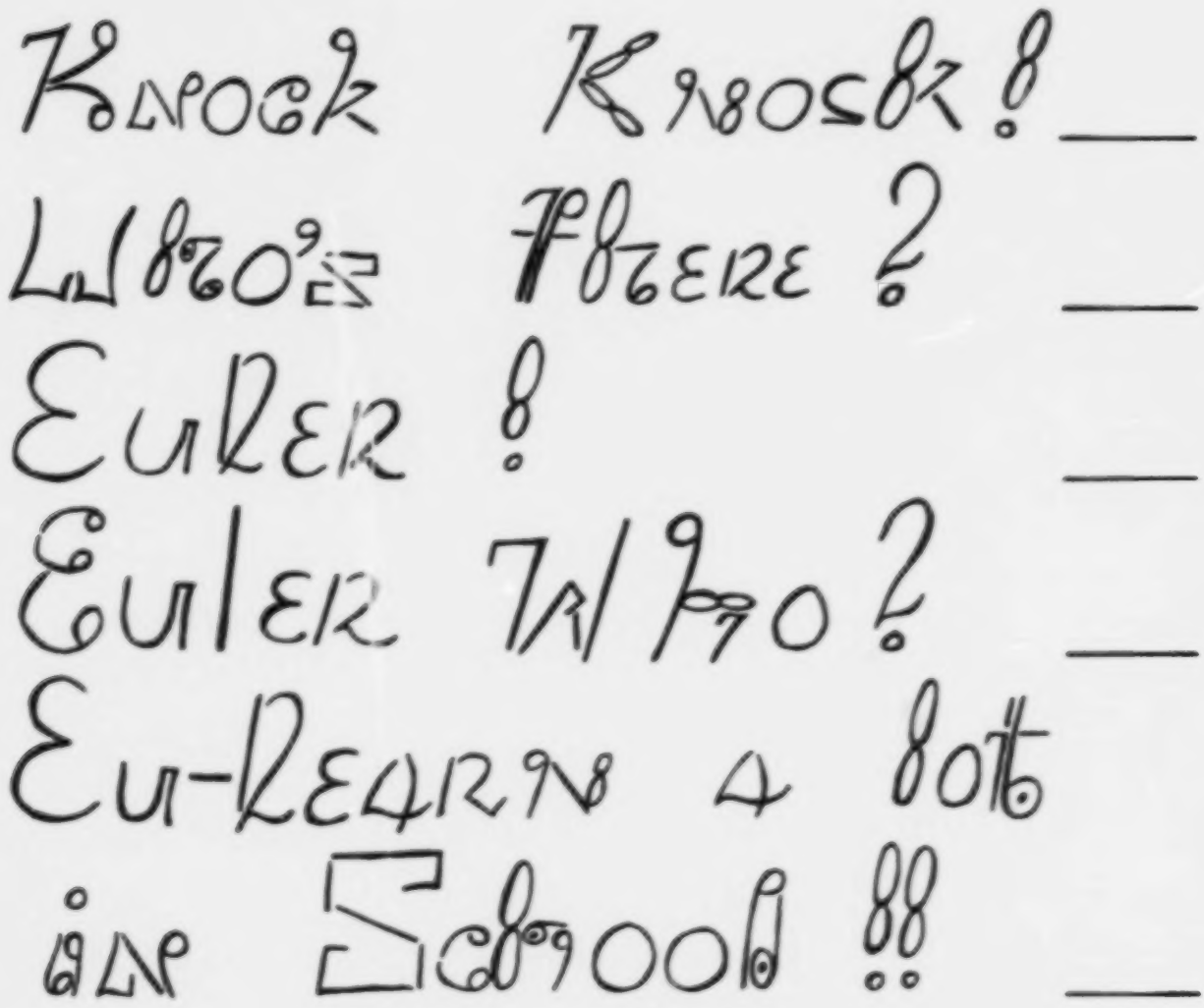
_____

Total the numbers on each of the creatures below then give a grand total for the page at the bottom. Here are some hints: the loops on nines are empty (9), but the loops on sixes have a dot or number inside them (6). Fives have straight spines (5), but twos are curved (2). Have fun, but Don't Get Bugged!!!!



Grand Total: _____

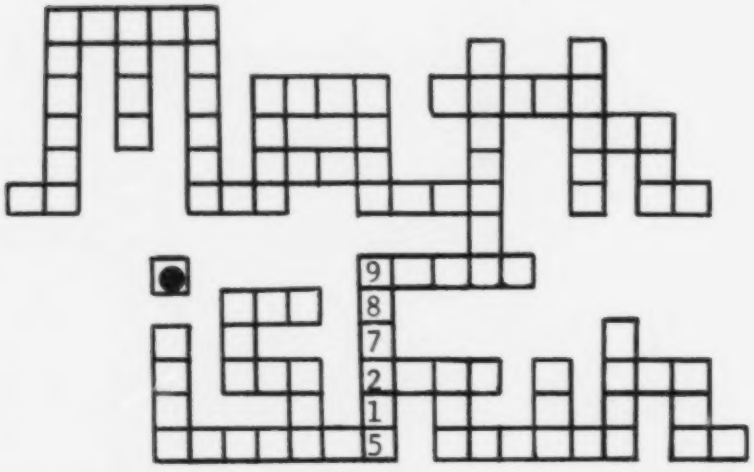
Total the numbers in each word, then total each line, and then your total for the entire joke will be easy! Here are some hints: the loops on nines are empty (9), but the loops on sixes will have a dot in them (6). Fives have straight spines (5), but twos are curved (2). NOW! START KNOCKING!!!



Page Total _____

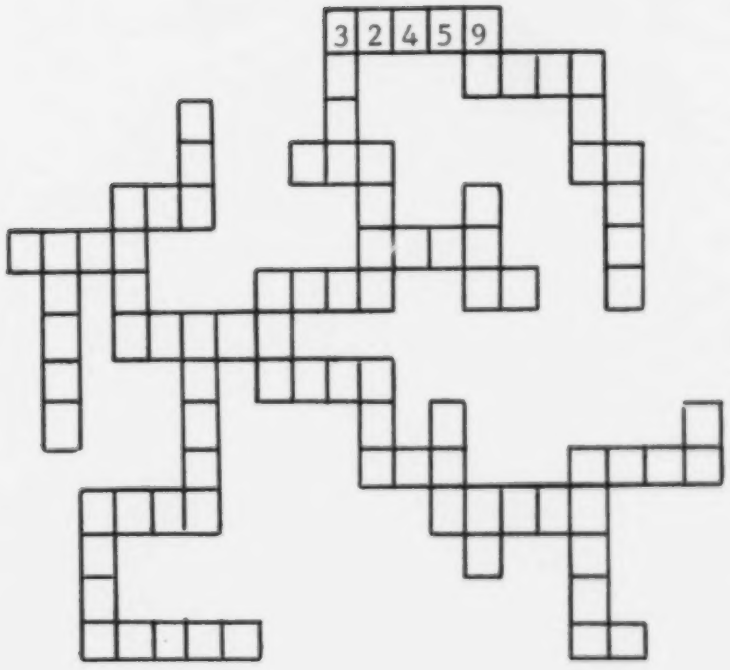
Place the numbers given below in the criss-cross puzzle. No number may be placed more than once. One number has been located for you.

2 Digits	3 Digits	4 Digits	5 Digits	6 Digits	7 Digits
63	128	1734	13942	267843	6382195
67	276	2573	23562	295328	9284135
77	322	2722	42183	634815	
	395	3819	93458	987215	
	416	4341			
	538	5419			
	576	6795			
	621	8191			
	724	8526			
	816				
	827				



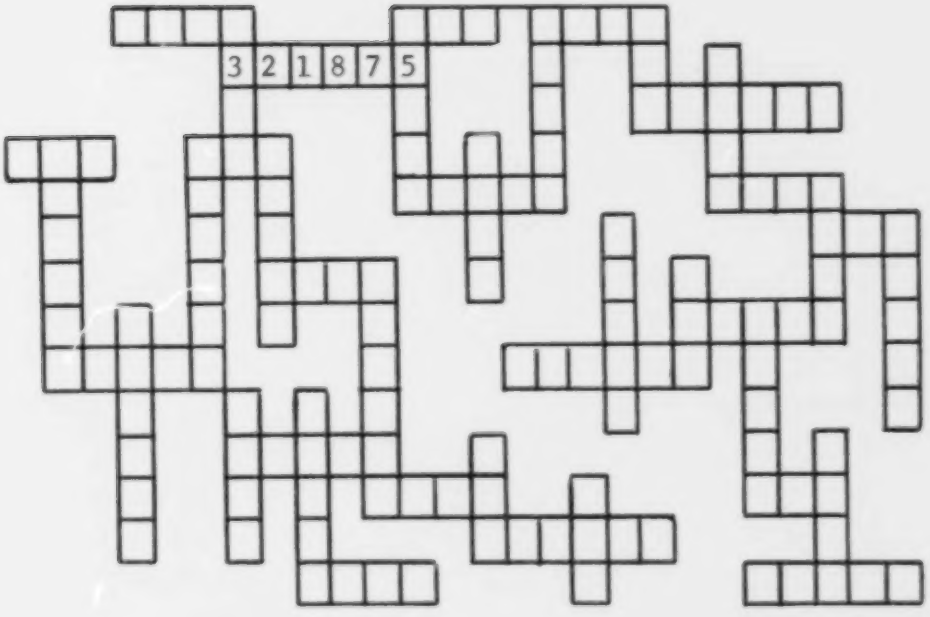
Place the numbers given below in the criss-cross puzzle. No number may be placed more than once. One number has been located for you.

2 Digits	3 Digits	4 Digits	5 Digits
17	315	2345	23451
38	317	2438	26928
43	328	3402	32459
59	413	3451	43076
77	475	3456	52401
92	514	3475	54923
	534	4027	57313
	718	5342	
	783	5436	
		5791	
		5976	
		9504	

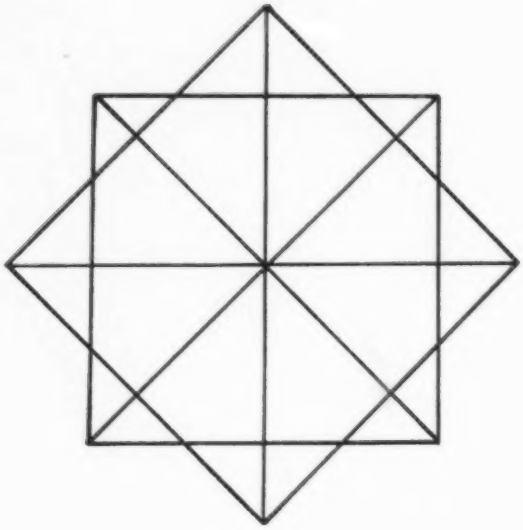


Place the numbers given below in the criss-cross puzzle. No number may be placed more than once. One number has been located for you.

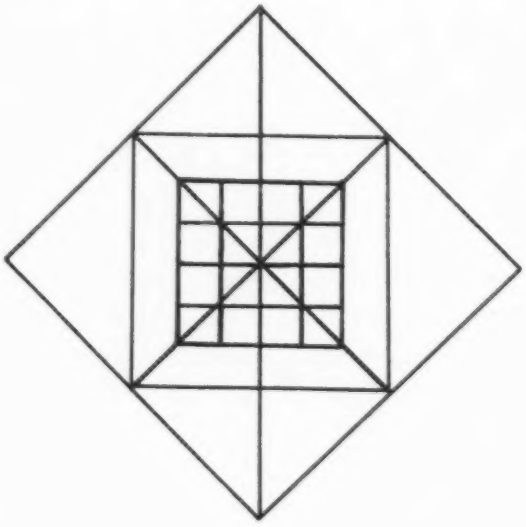
3 Digits	4 Digits	5 Digits	6 Digits
249	1036	23126	120313
283	1927	23165	129163
305	2928	28108	294067
431	3304	28718	321875
639	3314	42031	332056
642	3794	43236	510314
653	6023	51204	920831
705	6032	53175	931874
942	6431	62101	
	7563	63911	
	8632	65134	
	8724	71826	
		73175	



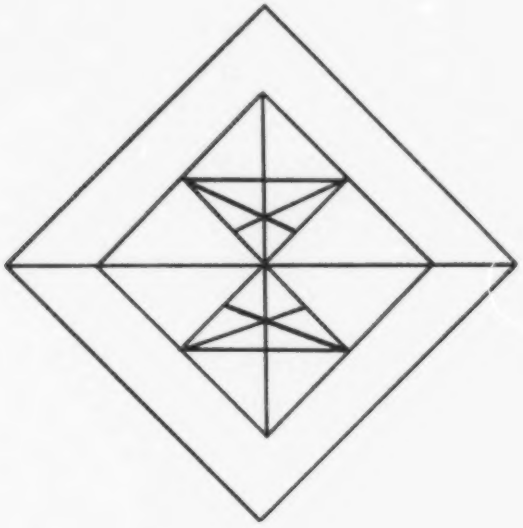
How many triangles do you see?



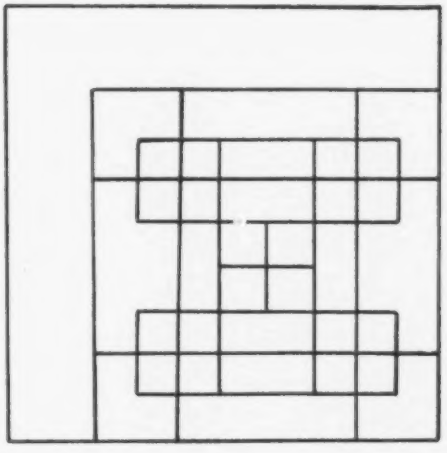
How many squares do you see?



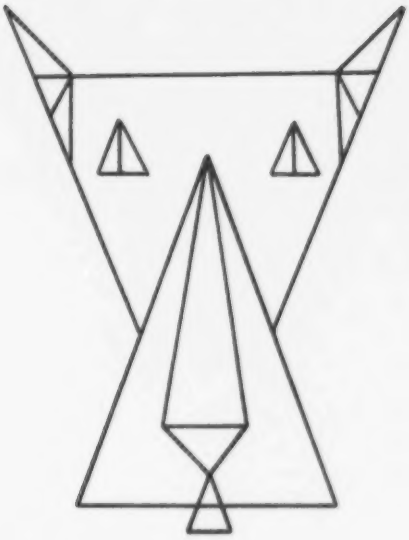
How many triangles do you see?



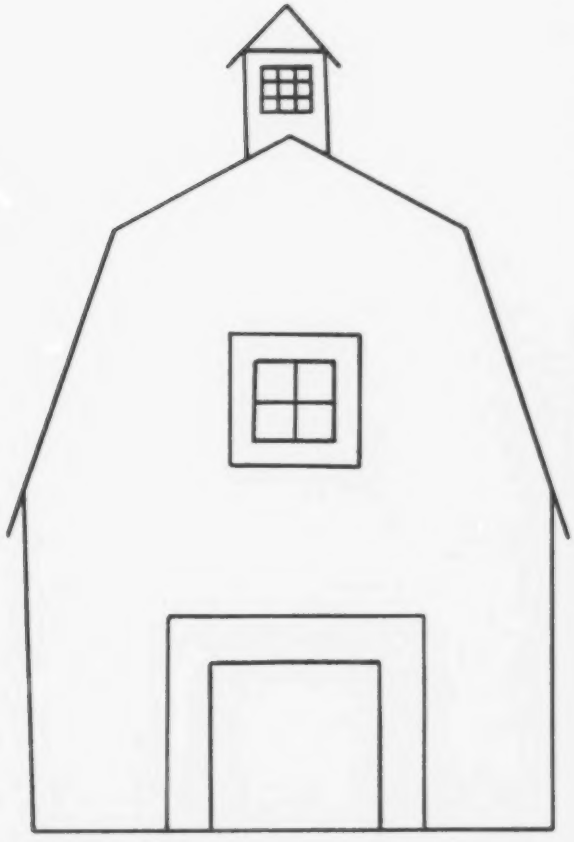
How many squares do you see?



How many triangles do you see?



How many squares do you see?



In this number maze start at the top line and move to the bottom making a total sum of 55. You can move vertically and diagonally but not horizontally.

Example: Can you move through this maze making a total sum of 15?

3	5	7	10	1	8
9	1	6	9	9	4
8	2	4	1	6	7
2	8	1	4	5	8

3	8	2	4	7	6	9	2	4	5
3	2	9	10	5	7	8	3	2	4
1	3	4	5	2	6	3	2	9	1
9	8	4	2	6	7	8	2	9	6
2	10	11	4	6	12	3	4	9	2
10	9	7	13	10	3	10	9	4	8
5	4	6	9	2	7	4	3	5	2
2	5	7	4	3	6	9	3	4	6

Can you move through this maze making a total sum of 60?

5	4	9	2	6	8	3	4
5	6	7	8	9	5	8	9
8	9	5	4	10	12	3	5
11	14	7	6	8	9	4	6
3	8	15	16	9	2	17	10
9	3	10	4	8	2	7	6
6	7	3	8	4	9	2	8
5	8	4	7	6	3	5	7
4	6	7	9	3	5	6	4

In this number maze start at the top line and move to the bottom making a total sum of 17. You can move vertically and diagonally but not horizontally.

Example: Can you move through this maze making a total sum of 15?

3	5	7	10	1	8
9	1	6	9	9	4
8	2	4	1	6	7
2	8	1	4	5	8

3	5	2	8	9	0	7	6
3	6	8	2	3	5	1	4
4	9	2	1	7	6	3	5
1	4	7	6	9	6	4	2
8	6	4	2	6	9	7	0
9	3	3	4	6	7	9	2

Can you move through this maze making a total sum of 50?

5	9	6	2	6	3	4	5
8	7	5	4	5	2	3	1
2	4	3	1	8	5	6	7
3	5	2	9	7	4	9	6
9	7	6	8	5	3	1	4
8	5	7	4	2	4	3	5
2	4	0	7	6	5	4	1
1	2	7	6	3	2	4	3
9	2	8	7	6	5	9	8
9	4	3	8	9	6	7	2

In this number maze start at the top line and move to the bottom making a total sum of 28. You can move vertically and diagonally but not horizontally.

Example: Can you move through this maze making a total sum of 15?

3	5	7	10	1	8
9	1	6	9	9	4
8	2	4	1	6	7
2	8	1	4	5	8

3	6	9	7	8	10	2	4
2	1	6	3	4	9	5	7
15	8	7	14	2	11	10	6
4	5	9	3	1	17	12	1
4	5	7	4	3	8	11	19
2	11	10	8	10	2	7	8
4	3	5	2	1	4	5	4
3	2	9	8	7	8	9	11
2	1	6	5	4	3	2	6

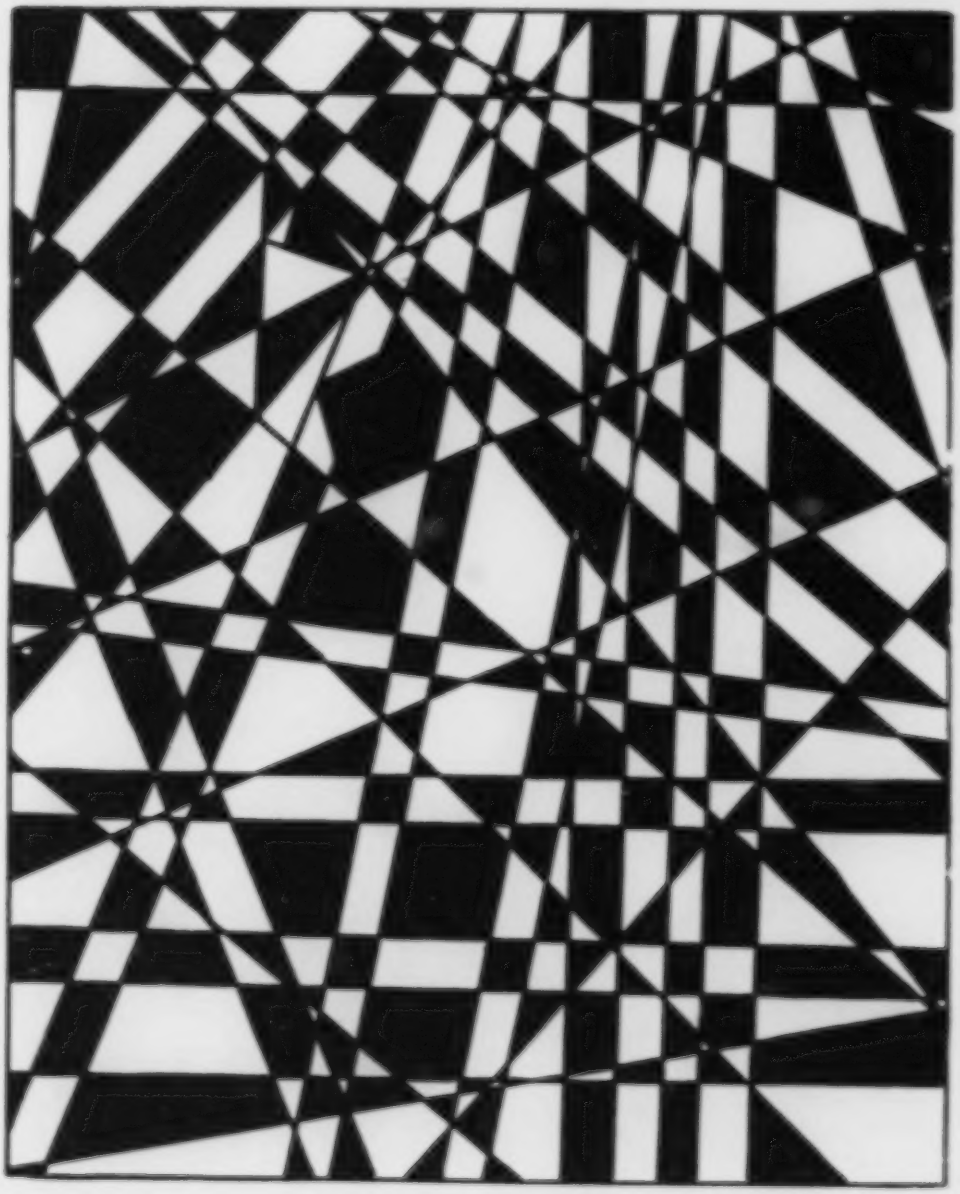
Can you move through this maze making a total sum of 31?

4	3	2	10	12	9	1	7	5	2	5
2	1	4	9	3	1	6	9	12	11	7
15	12	14	1	10	12	8	3	11	13	9
8	7	6	9	12	14	4	7	3	8	9
3	9	12	10	7	12	14	8	7	12	9
1	3	4	5	9	7	4	3	9	10	3
8	6	10	7	12	4	5	10	3	9	3
4	3	5	8	9	1	11	5	11	14	4

Look carefully in the picture below and see if you can find the four letters that are in the word 'math'. Here are some hints: the letters are randomly placed (that is, they do not spell out math), the letters are all approximately the same size, and they are written in block form like the ones just below.

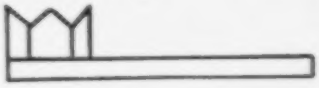
MATH

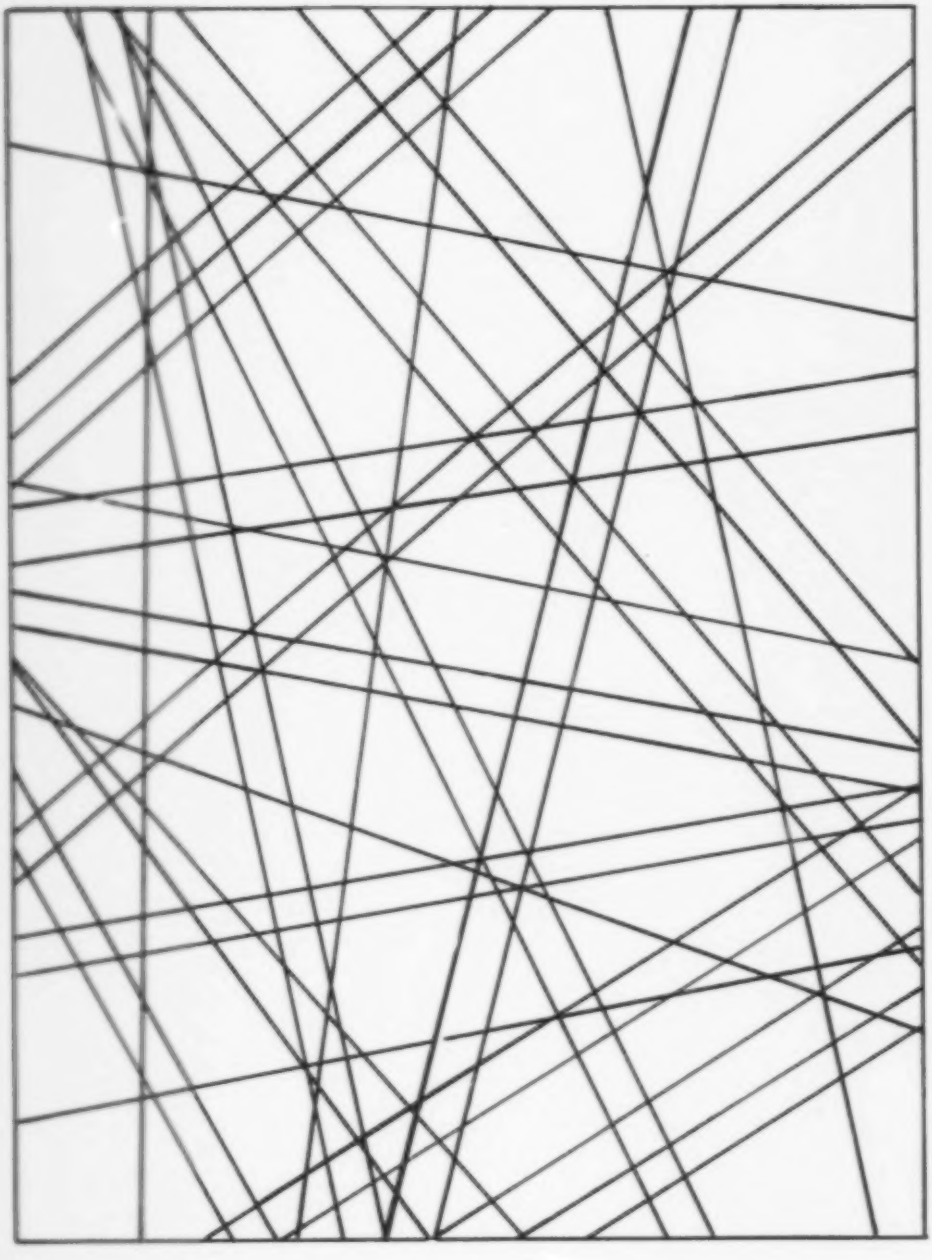
Now, let's see if you can find all four of the letters!!



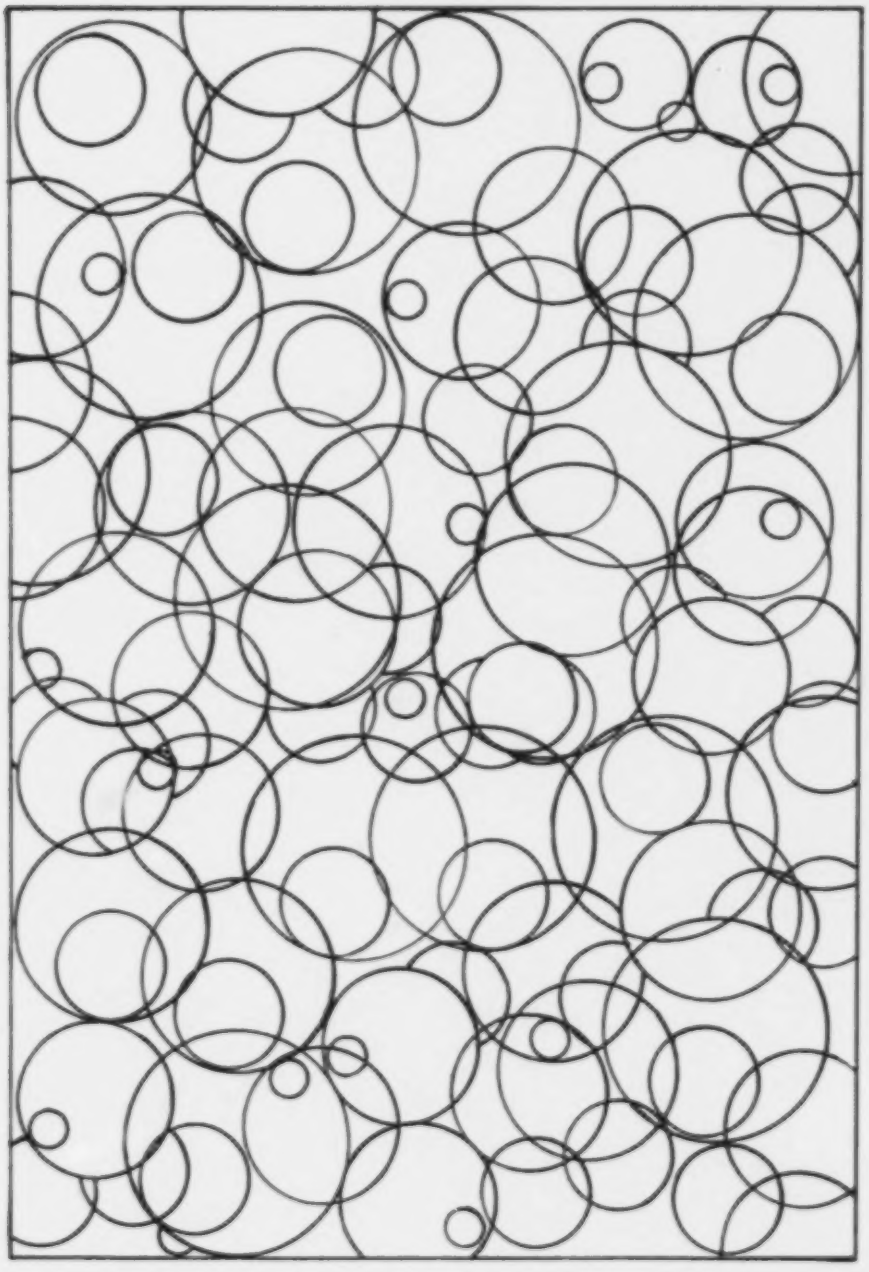
57

Somewhere in the picture below there is a toothbrush just like the one drawn at the right- except the one you are to find is bigger! See if you can find it!!!

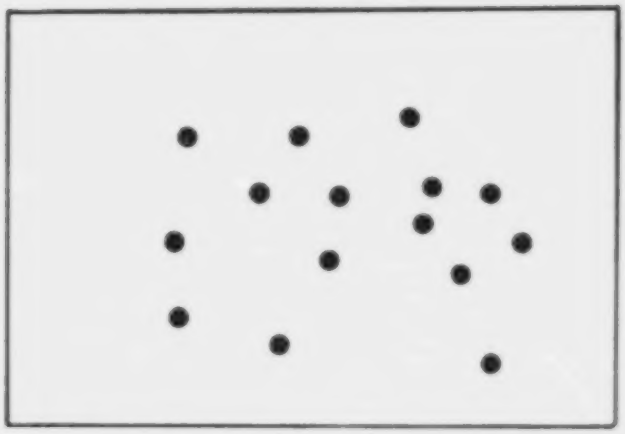




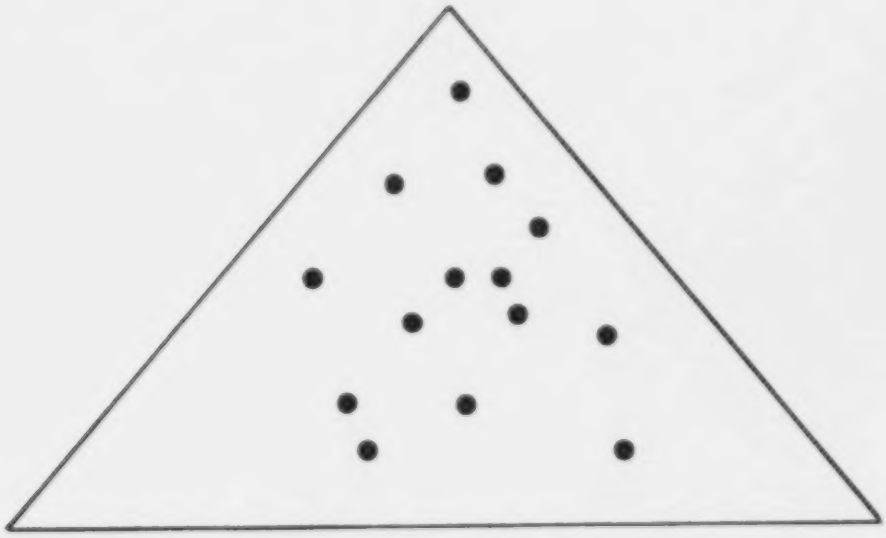
In the picture below you will find a bear just like the one drawn to the right of the directions only it will be a <u>different size</u>. Time yourself and see how long it takes you to find the bear!!!



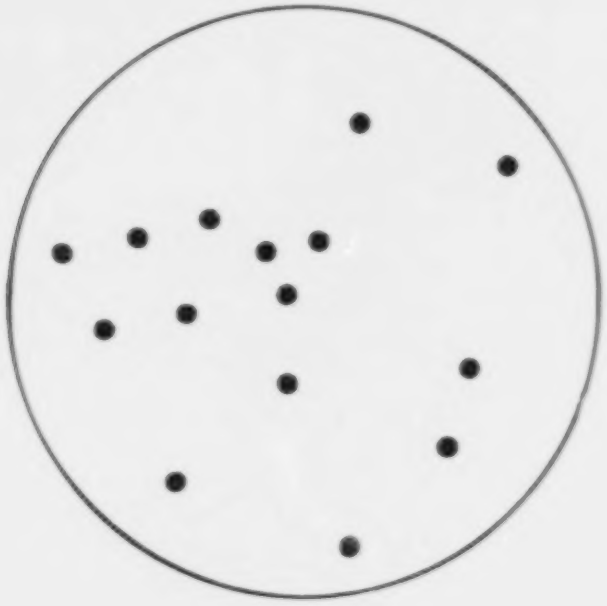
The dots in the picture below represent horses. Draw 6 lines (border to border) so that each horse is fenced off by itself.



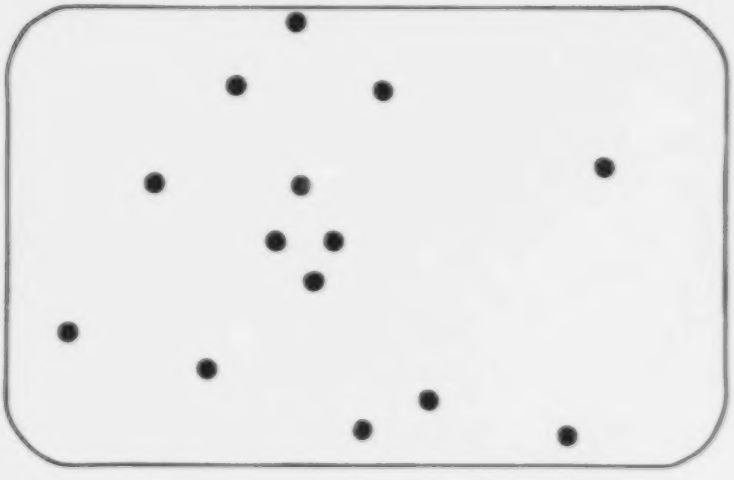
Can you draw 5 lines to fence these horses in?



The dots in the picture below represent horses. Draw 5 lines (border to border) so that each horse is fenced off by itself.

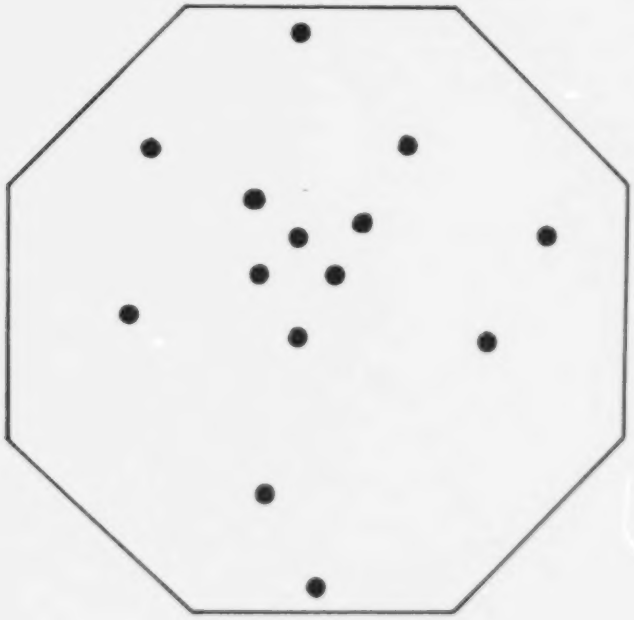


Can you draw 5 lines to fence these horses in?

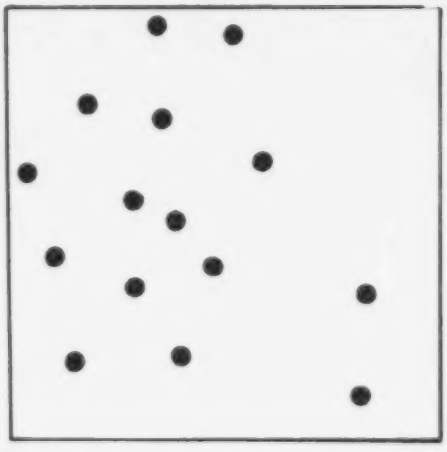


61

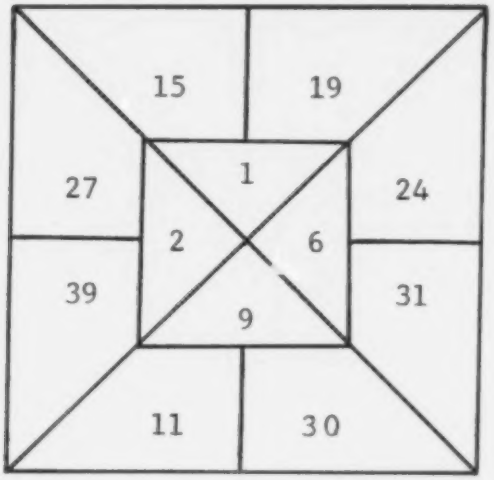
The dots in the picture below represent horses. Draw 5 lines (border to border) so that each horse is fenced off by itself.



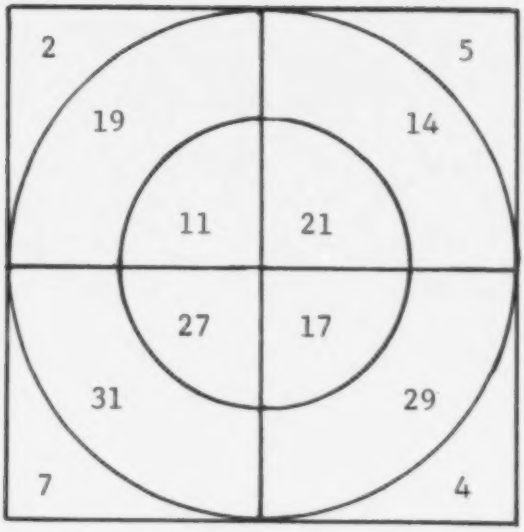
Can you draw 5 lines to fence these horses in?



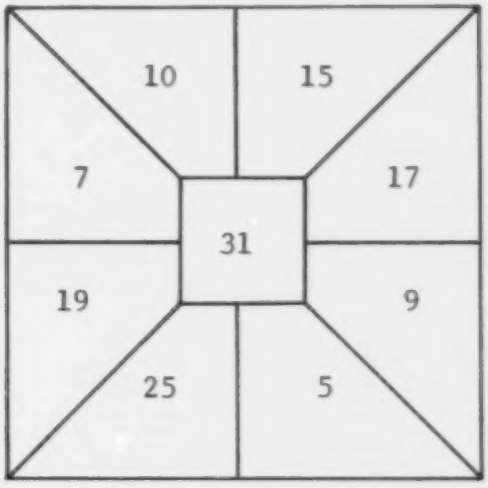
The picture below represents a target. Can you make 5 shots at the target making a total score of 102? (No number was used twice and each shot hit the target.)



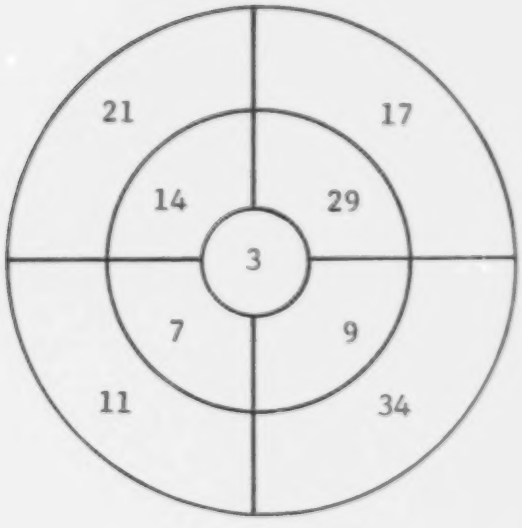
Can you find what 5 shots would give you a total of 85?



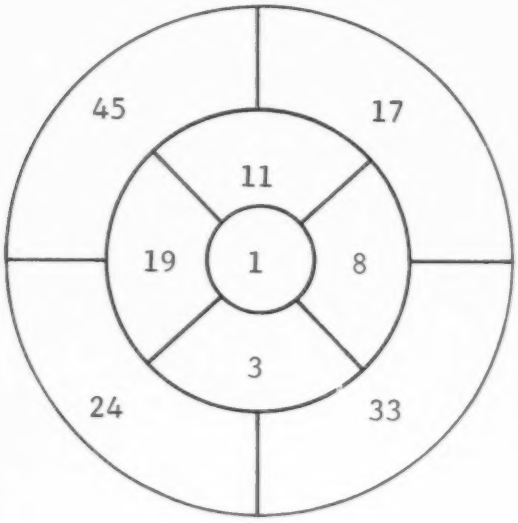
The picture below represents a target. Can you make 4 shots at the target making a total score of 60? (No number was used twice and each shot hit the target.)



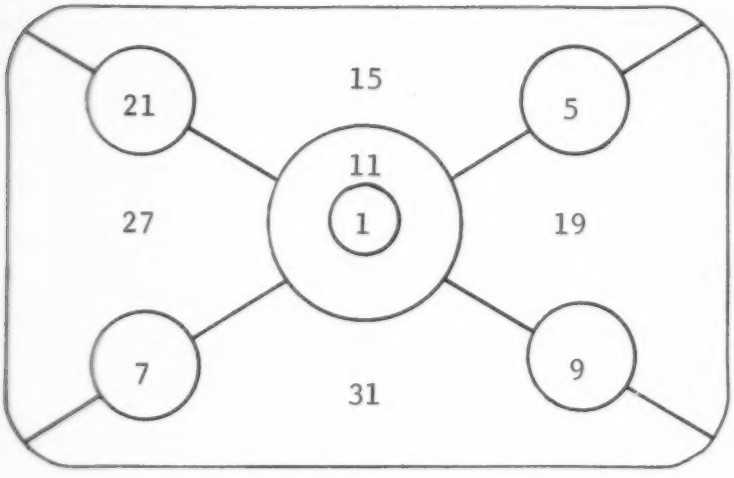
Can you find what 4 shots would give you a total of 84?



The picture below represents a target. Can you make 5 shots at the target making a total score of 116? (No number was used twice and each shot hit the target.)



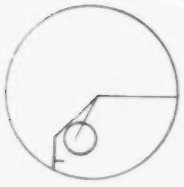
Can you find what 5 shots would give you a total of 71?



Page 1

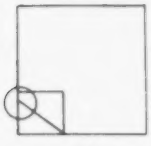
first one
in row 2

Page 2



second one
in row 1

Page 3



second one
in row 3

1A-3A

1. 720, 5040, 40320
   Pattern: Ax2=B, Bx3=C, Cx4=D, ...

2. 10, 9, 14
   Pattern: A+5=B, B-7=C, C+5=D, D-7=E,...

3. 16, 36, 20
   Pattern: 1st, 3rd, 5th, ... are multiples of 4
   2nd, 4th, 6th, ... are multiples of 9

4. 17, 20, 21
   Pattern: A+1=B, B+2=C, C+3=D, D+1=E, E+2=F, F+3=G, ...

5. 31, 33, 41
   Pattern: A+1=B, B+2=C, C+5=D, D+1=E, E+2=F, F+6=G,
   G+1=H, H+2=I, I+7=K, K+1=L, L+2=M, M+8=N, ...

6. 36, 49, 64
   Pattern: 1x1, 2x2, 3x3, 4x4, 5x5, 6x6, ...

7. 216, 343, 512
   Pattern: 1x1x1, 2x2x2, 3x3x3, 4x4x4, 5x5x5, 6x6x6, ...

8. 30, 6, 42
   Pattern: 1st, 3rd, 5th,... count by 1s--1, 2, 3, 4, ...
   2nd+4=4th, 4th+6=6th, 6th+8=8th, 8th+10=10th,...

9. 32, 5, 37
   Pattern: 2nd, 4th, 6th,... obtained by adding digits of
   the 1st, 3rd, 5th,...
   3rd=1st+2nd, 5th=3rd+4th, 7th=5th+6th,...

10. 25, 10, 15
    Pattern: 2nd, 4th, 6th,... obtained by multiplying
    digits of the 1st, 3rd, 5th,...
    2nd+5=3rd, 4th+5=5th, 6th+5=7th, 8th+5=9th,...

4A

1. 77, 100, 129
   Pattern: A+2=B, B+3=C, C+5=D, D+7=E, E+11=F,...
   To each number you add the next successive prime.

2. 80, 82, 241
   Pattern: A+1=B, B+2=C, C+B+A=D, D+1=E, E+2=F, F+E+D=G,...

3. 22, 23, 24
   Pattern: whole numbers in sequence beginning with the
   letter "t"

4. 12, 13, 20
   Pattern: two, three, four, five, six, seven, eight, eleven,
   nine, nineteen, ten, twelve, thirteen, twenty

5. 0, 6, 12
   Pattern: A, B, 6C are multiples of 2, D, E, 6F are
   multiples of 3, then multiples of 4, ...

6. 10, 5, 1
   Pattern: A-10=B, B-9=C, C-8=D, D-7=E, E-6=F, ...

7. 103, 104, 110
   Pattern: counting numbers from 33_{five} to 110_{five}

8. O, N, D
   Pattern: first letter of the twelve months

9. F, U, G
   Pattern: 1st, 3rd, 5th, ... alphabet in sequence
   2nd, 4th, 6th, ... alphabet backwards

10. E, N, D
    Pattern: 1st, 3rd, 5th, ... spell sixteen
    2nd, 4th, 6th, ... spell hundred

5A

1. 17, 19, 23
   Pattern: prime numbers

2. 514800, 25225200, 1614413800
   Pattern: Ax1x1=B, Bx2x2=C, Cx3x3=D, Dx4x4=E, ...

3. 69, 138, 141
   Pattern: A+3=B, Bx2=C, C+3=D, Dx2=E, E+3=F, Fx2=G, ...

4. 61, 36, 85
   Pattern: 1st, 3rd, 5th, ... = 1^2, 2^2, 3^2, ...
   2nd=1st+3rd, 4th=3rd+5th, 6th=5th+7th, ...

5. 216, 432, 1296
   Pattern: Ax2=B, Bx3=C, Cx2=D, Dx3=E, ...

6. $16/243$, $32/729$, $64/2187$
   Pattern: Ax2/3=B, Bx2/3=C, Cx2/3=D, ...

7. $2\ 5/6$, $3\ 1/6$, $3\ 1/2$
   Pattern: A+1/3=B, B+1/3=C, C+1/3=D, D+1/3=E, ...

8. $1/720$, $1/5040$, $1/40320$
   Pattern: Ax1/2=B, Bx1/3=C, Cx1/4=D, Dx1/5=E, ...

9. 30, $3\ 3/4$, 38
   Pattern: 1st/3=2nd, 1st+3=3rd, 3rd/4=4th, 3rd+4=5th,
   5th/5=6th, 5th+5=7th, 7th/6=8th, 7th+6=9th, ...

10. .100001, .1000001, .10000001
    Pattern: one zero, two zeros, three zeros, four zeros,...

6A

40	5	30
15	25	35
20	45	10

31	3	5	25
9	21	19	15
17	13	11	23
7	27	29	1

7A

BEST COPY AVAILABLE

80	10	15	65
25	55	50	40
45	35	30	60
20	70	75	5

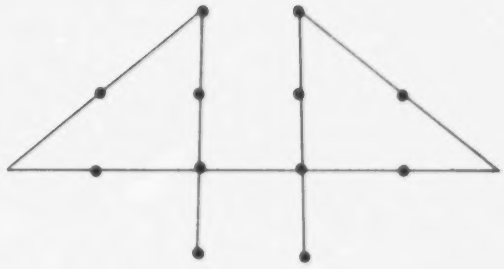
34	48	2	16	30
46	10	14	28	32
8	12	26	40	44
20	24	38	42	6
22	36	50	4	18

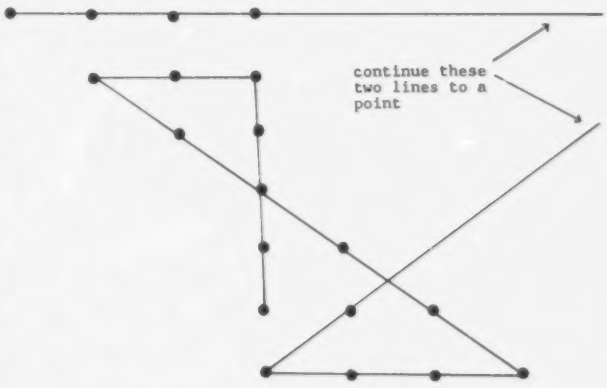
8A

17	24	1	8	15
23	5	7	14	16
4	6	13	20	22
10	12	19	21	3
11	18	25	2	9

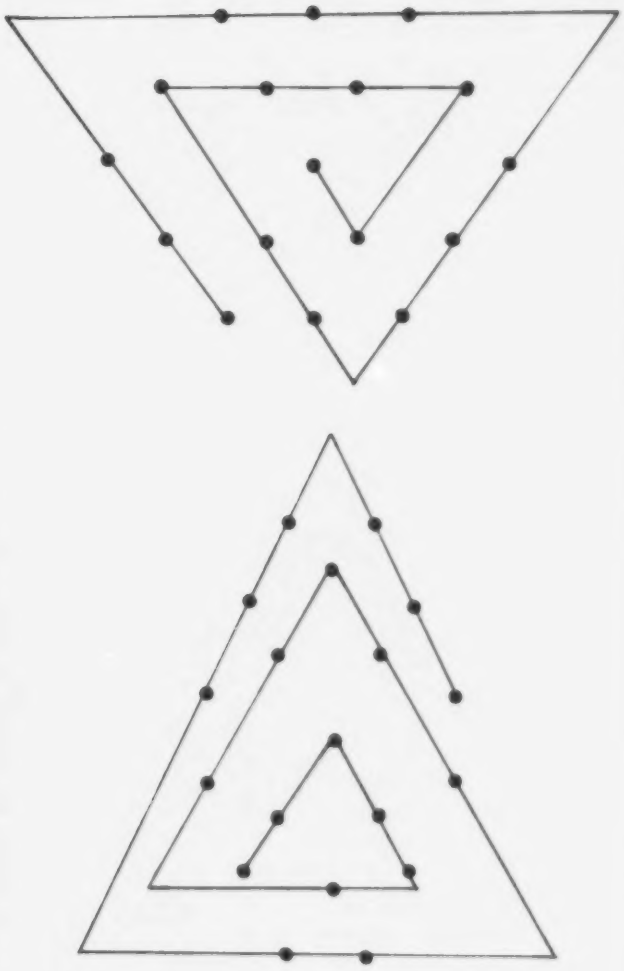
64	2	3	61	60	6	7	57
9	55	54	12	13	51	50	16
17	47	46	20	21	43	42	24
40	26	27	37	36	30	31	33
32	34	35	29	28	38	39	25
41	23	22	44	45	19	18	48
49	15	14	52	53	11	10	56
8	58	59	5	4	62	63	1

9A

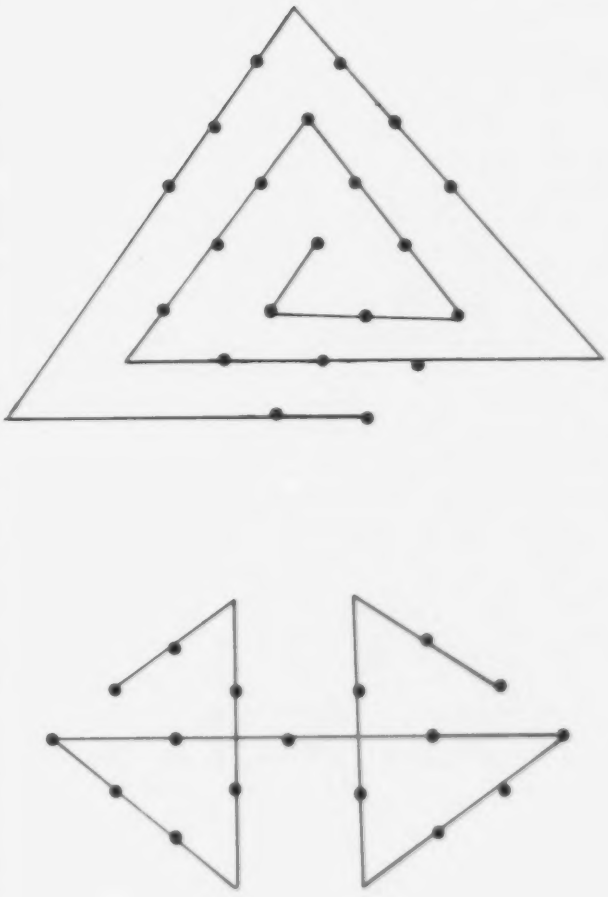




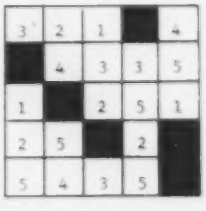
10A

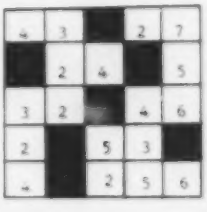


11A

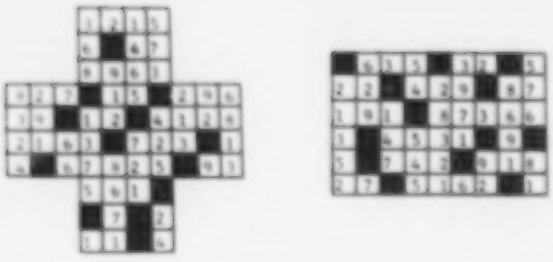


12A

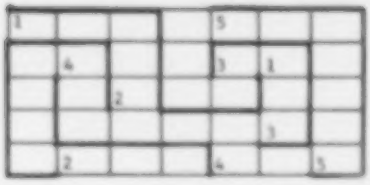


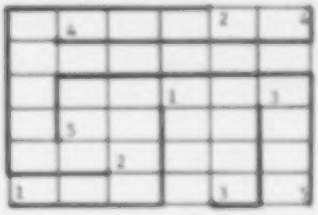


13A



14A



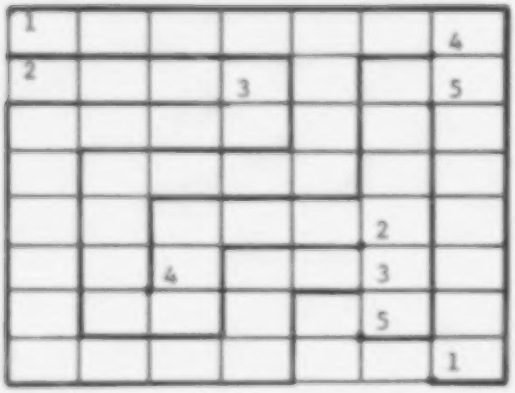


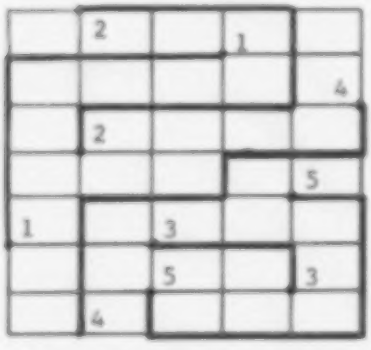
16A

3	5	7	8	1
6	9	2	1	5
1	●	6	●	4
7	4	■	3	6
8	9	∿	2	3

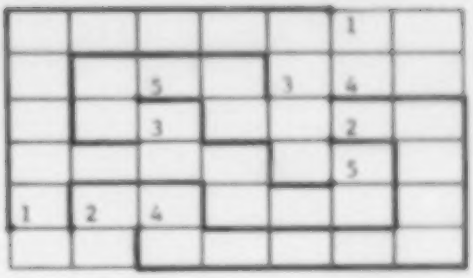
1	6	4	3	2		5	2	7	8	6
4	9	5	2	8		6	3	1	5	4
2	6	■	7	3		9	2	■	3	8
6	1	8	5	2		1	7	4	2	1
3	4	2	3	4		7	8	2	9	8

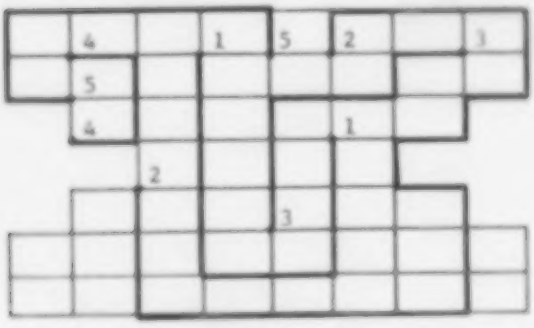
15A





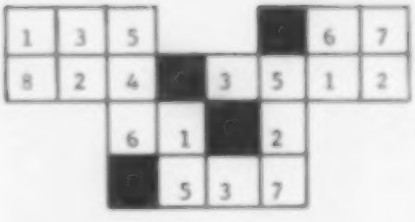
17A





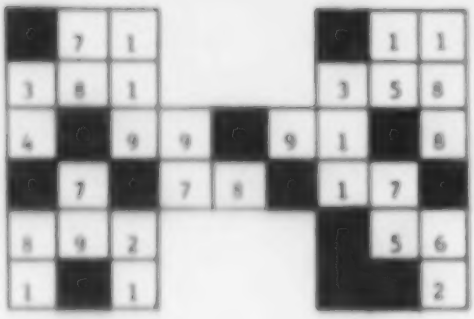
18A

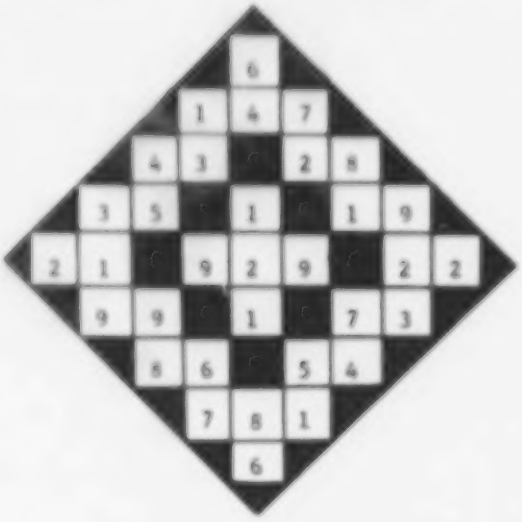
Answers may vary slightly.



19A

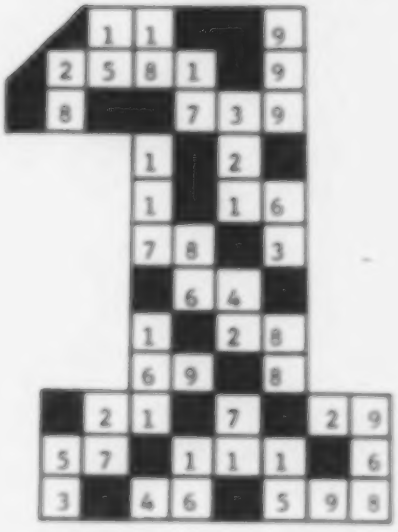
Answers may vary slightly.





20A

Answers may vary slightly.



21A

1. $42 - 4 + 1 - 24 = 15$

2. $6 + 42 - 32 = 16$

3. $9 - 6 + 32 - 21 = 14$

4. $2 + 4 - 3 + 12 - 3 = 12$

5. $8 - 6 + 24 - 4 + 2 = 24$

6. $9 - 3 + 6 - 2 + 31 = 41$

7. $1 + 21 - 2 - 12 = 8$

8. $3 + 21 + 3 - 21 = 6$

22A

1. $(3 + 21) \div (12 \div 3) = 6$

2. $(12 + 33) \div (2 + 1) = 15$

3. $6 - 5 + 4 - (3 + 2) = 0$

4. $12 - 64 \div 32 = 10$

5. $\left[123 - (4 + 5)\right] \div 6 = 19$

6. $(424 - 4) \div 28 = 15$

7. $65 - 44 \div (5 + 6) = 61$

8. $(23 - 4 - 4) \div (3 + 2) = 3$

23A

1. $3 \div (2 + 1) \times 2 \times 2 = 4$

2. $42 \div (4 + 2) + 2 = 9$

3. $24 \times 12 \div 6 \div 3 - 2 - 1 = 13$

4. $16 \div 8 + 42 - 12 = 32$

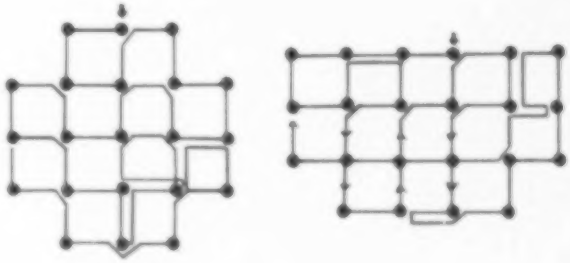
5. $(4 + 2 + 24) \div (2 + 4) = 5$

6. $(24 + 12 + 6) - 42 \div 2 = 21$

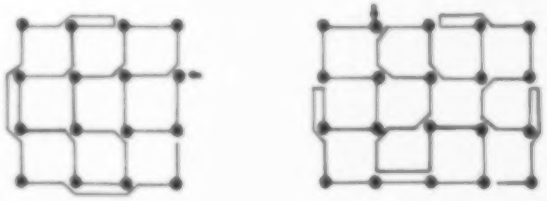
7. $(16 + 84) \times 2 \div 4 = 50$

8. $24 \times 12 - (63 \times 2 \times 2) = 36$

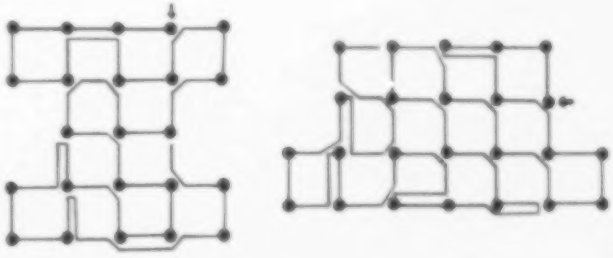
24A



25A



26A



27A

1. zero
2. twenty-one
3. thirty
4. fifty-two
5. eighty
6. fifty
7. eight
8. ninety
9. hundred
10. twelve
11. sixty
12. eleven
13. forty
14. nineteen
15. twenty-two
16. forty-four
17. ninety-one
18. seven
19. seventy

28A

1. product
2. sum
3. multiply
4. quotient
5. subtrahend
6. remainder
7. total
8. factor
9. minuend
10. add
11. division
12. borrowing
13. subtract
14. dividend
15. addend
16. divisor

29A

1. counting
2. percent
3. sets
4. fraction
5. measuring
6. statistics
7. geometry
8. decimals
9. addition
10. equations
11. metric system
12. subtraction
13. probability
14. ratio
15. division
16. rounding
17. proportion
18. logic

30A

1. $1^{11}/11$ or $1^{11} \div 1^{1} = 2$

2. $(22 - 2) \div 2 = 10$

3. $33 - 3^{3} - 3$ or $3 + 3 + 3 - 3 - 3 = 3$

4. $4 \times 4^{4}/4 = 20$

5. $5 \times 5 + 55 = 80$

6. $(6 \times 6 - {}^{6}/6) \div 6^{6}/6 = 5$

7. $7(7 + 7) - 7 \times 7 = 49$

8. $8^{8}/8 - 8 = 1$

9. $(9 \times \sqrt{9}) \div 9 = 3$

10. $10^{10}/10 \times {}^{10}/10 = 11$

31A

1. $2 + 2^2/2 = 5$

2. $6 \times 6 - 6 = 30$

3. $99^9/9 = 100$

4. $(88 - 88) \div 8$ or $(^8/8 - {}^8/8) \div 8 = 0$

5. $1^1/1 + 1 + 1 - 1$ or $1^{11}/11 + 1 = 3$

6. $44^4/4 \div 4^4/4$ or $^{44}/4 - {}^4/4 - {}^4/4 = 9$

7. $10 \times 10 - 10 + {}^{10}/10 = 91$

8. $(7 \times 7 + 7) \div 7 = 8$

9. $^{55}/55 + 5 = 6$

10. $^{333}/3 - 3 \times 3^3 = 30$

1. $33 - 22 = 11$ or $2 \times 3 + 2 + 3 = 11$

2. $2^1/1 = 3$

3. $5 \times 5 - (7 + 7 + 7) = 4$

4. $43 - 34 = 9$

5. $4 \times 4 - 14 = 2$

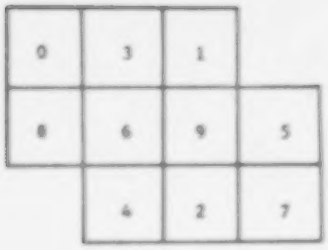
6. $^{48}/4 - 8^8/4 = 2$

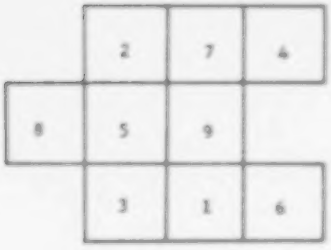
7. $2^5 - 5^2 = 7$

8. $(89 + 8 - 9 \times 9) \div (8 + 8) = 1$

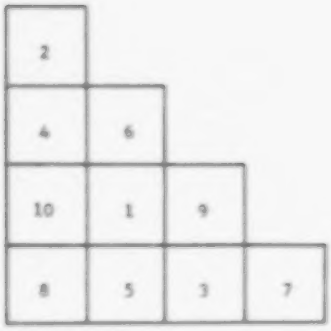
9. $3(^{10^3}/10) - 10 \times 3^3 = 30$

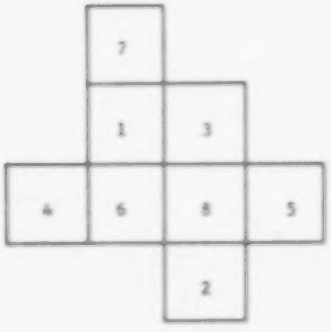
10. $355 - (53 \times 5) - (55 + 33) = 2$



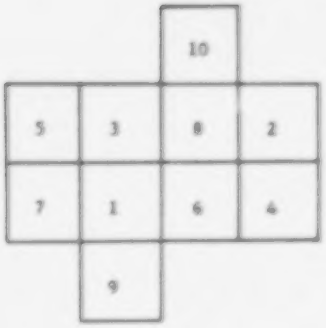


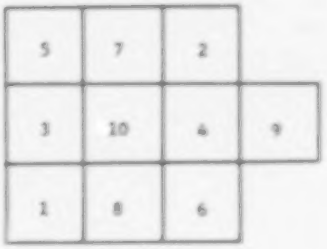
34A





35A





36A

Answers may vary.

1. A = 3	2. A = 1	3. ! = 2
B = 5	B = 5	@ = 3
C = 1	C = 9	☆ = 1
D = 2	D = 6	ø = 9
4. X = 1	5. H = 1	6. ? = 1
Y = 2	A = 2	& = 5
Z = 5	E = 4	¢ = 7
		$ = 2

37A

Answers may vary.

1. B = 1
   D = 0
   E = 3
   F = 5
   G = 6

2. A = 3
   B = 5
   C = 4
   D = 1
   E = 2

3. ? = 1
   * = 0
   % = 5
   $ = 2
   ! = 4

4. V = 2
   W = 5
   G = 1
   T = 3
   I = 7

5. W = 4
   X = 6
   Y = 1
   Z = 2

6. & = 2
   # = 0
   ¢ = 4
   @ = 1

38A

Answers may vary.

1. A = 1
   B = 0
   C = 3
   D = 4
   E = 2

2. R = 4
   S = 8
   T = 5
   U = 1

3. L = 1
   M = 8
   N = 5
   P = 2

4. ? = 3
   : = 1
   " = 0
   ° = 5

5. ! = 1
   ? = 4
   * = 2

6. F = 2
   G = 4
   H = 5
   I = 0
   J = 1

39A

Page 40

Frog----------56
Flowers----------277

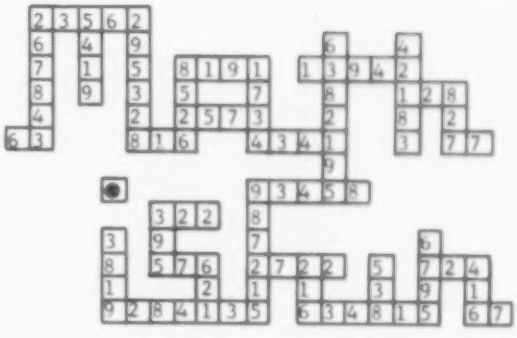
Page 41

Small Butterfly----------36
Lady Bug----------96
Ant----------53
Caterpillar----------106
Butterfly----------75
Bee----------62
Total----------428

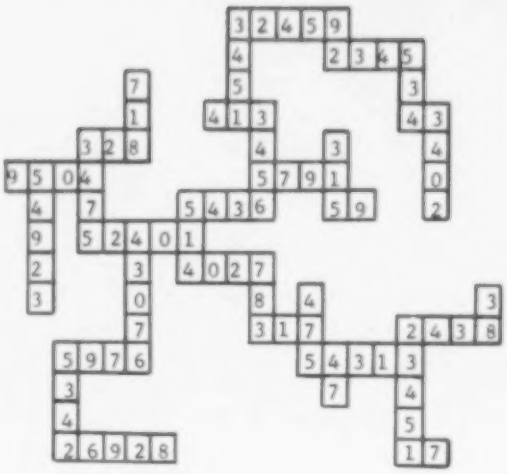
Page 42

Line 1----------147
Line 2----------105
Line 3----------25
Line 4----------81
Lines 5 & 6----------194
Total----------552

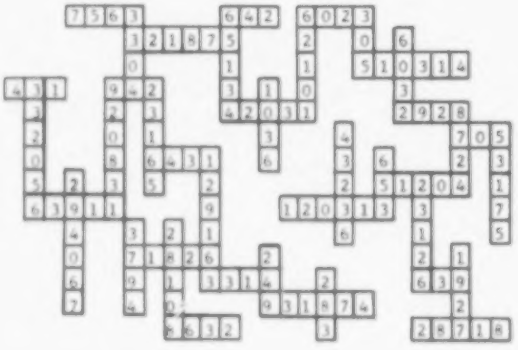
40A-42A



43A



44A



45A

Page 46 56 triangles
36 squares

Page 47 52 triangles
42 squares

Page 48 23 triangles
22 squares

46A-48A

3	8	2	4	7	6	9	2	4	5
3	2	9	10	5	7	8	3	2	4
1	3	4	5	2	6	3	2	9	1
9	8	4	2	6	7	8	2	9	6
2	10	11	4	6	12	3	4	9	2
10	9	7	13	10	3	10	9	4	8
5	4	6	9	2	7	4	3	5	2
2	5	7	4	3	6	9	3	4	6

5	4	9	2	6	8	3	4
5	6	7	8	9	5	8	9
8	9	5	4	10	12	3	5
11	14	7	6	8	9	4	6
3	8	15	16	9	2	17	10
9	3	10	4	8	2	7	6
6	7	3	8	4	9	2	8
5	8	4	7	6	3	5	7
4	6	7	9	3	5	6	4

49A

3	5	2	8	9	0	7	6
3	6	8	2	3	5	1	4
4	9	2	1	7	6	3	5
1	4	7	6	9	6	4	2
8	6	4	2	6	9	7	0
9	3	3	4	6	7	9	2

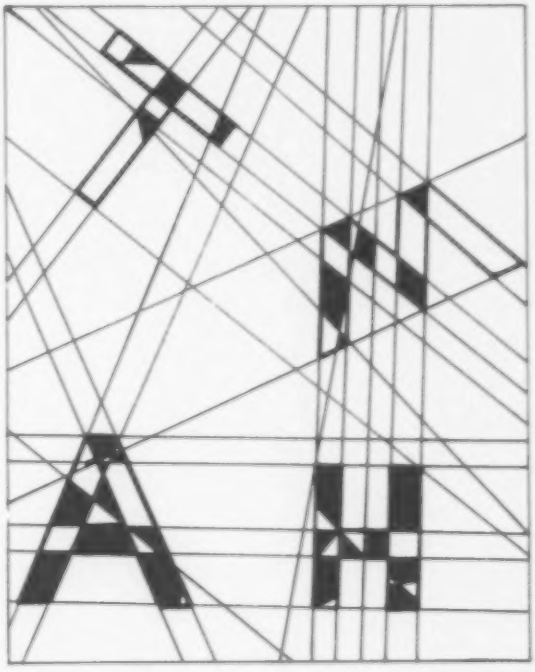
5	9	6	2	6	3	4	5
8	7	5	4	5	2	3	1
2	4	3	1	8	5	6	7
3	5	2	9	7	4	9	6
9	7	6	8	5	3	1	4
8	5	7	4	2	4	3	5
2	4	0	7	6	5	4	1
1	2	7	6	3	2	4	3
9	2	8	7	6	5	9	8
9	4	3	8	9	6	7	2

50A

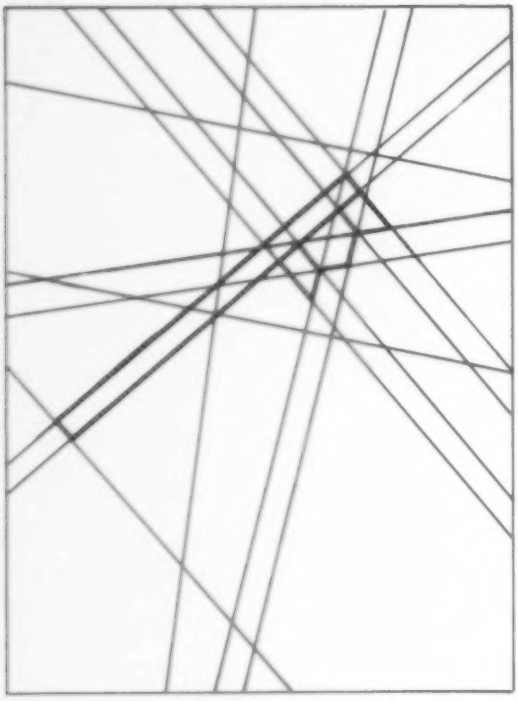
3	6	9	7	8	10	2	4		
2	1	6	3	4	9	5	7		
15	8	7	14	2	11	10	6		
4	5	9	3	1	17	12	1		
4	5	7	4	3	8	11	19		
2	11	10	8	10	2	7	8		
4	3	5	2	1	4	5	4		
3	2	9	8	7	8	9	11		
2	1	6	5	4	3	2	6		

4	3	2	10	12	9	1	7	5	2	5
2	1	4	9	3	1	6	9	12	11	7
15	12	14	1	10	12	8	3	11	13	9
8	7	6	9	12	14	4	7	3	8	9
3	9	12	10	7	12	14	8	7	12	9
1	3	4	5	9	7	4	3	9	10	3
8	6	10	7	12	4	5	10	3	9	3
4	3	5	8	9	1	11	5	11	14	4

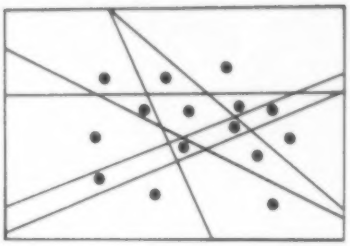
51A

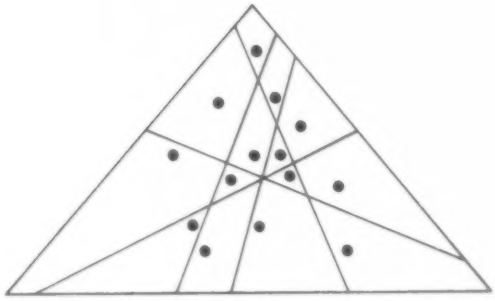


52A

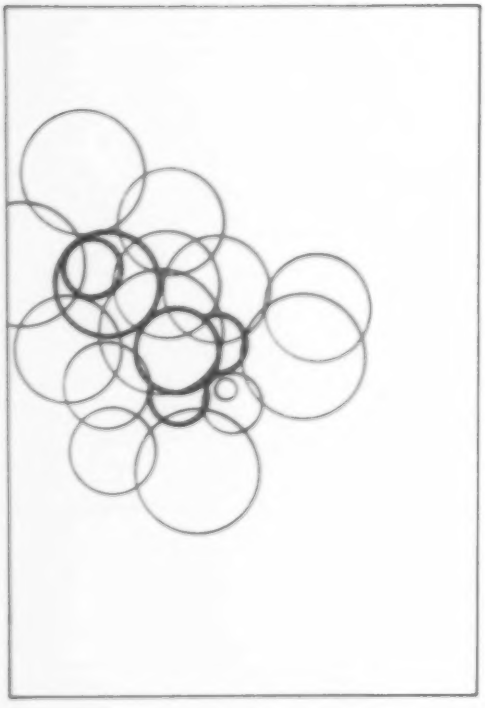


53A

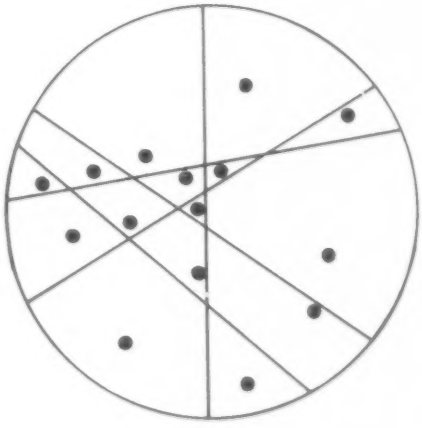


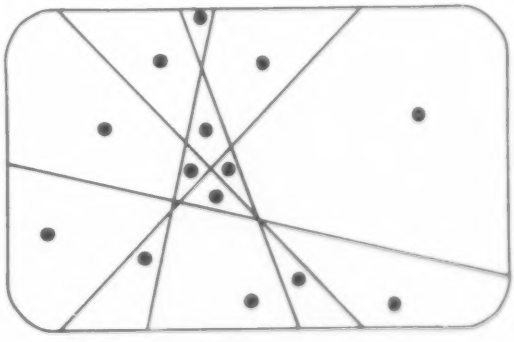


55A

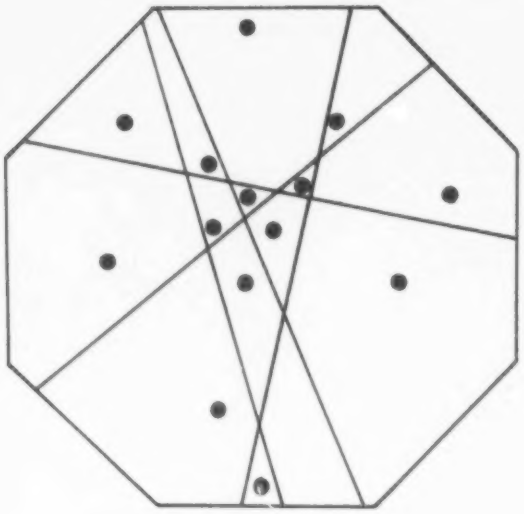


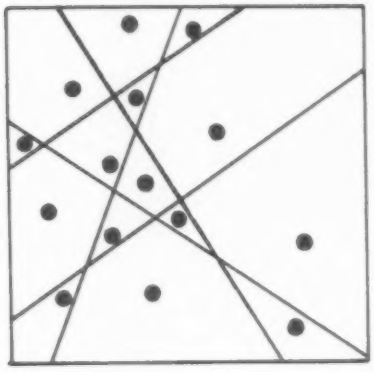
54A





56A





57A

Page 58A

1 + 19 + 24 + 27 + 31 = 102
2 + 6 + 24 + 31 + 39 = 102
2 + 15 + 19 + 27 + 39 = 102
2 + 15 + 24 + 30 + 31 = 102
2 + 19 + 24 + 27 + 30 = 102
2 + 11 + 19 + 31 + 39 = 102
6 + 11 + 15 + 31 + 39 = 102
6 + 11 + 19 + 27 + 39 = 102
6 + 11 + 24 + 30 + 31 = 102
6 + 15 + 24 + 27 + 30 = 102
9 + 11 + 19 + 24 + 39 = 102
9 + 11 + 24 + 27 + 31 = 102
11 + 15 + 19 + 27 + 30 = 102

Page 58B

2 + 4 + 19 + 29 + 31 = 85
2 + 4 + 21 + 27 + 31 = 85
2 + 11 + 14 + 27 + 31 = 85
2 + 14 + 17 + 21 + 31 = 85
2 + 14 + 19 + 21 + 29 = 85
4 + 7 + 14 + 29 + 31 = 85
4 + 11 + 14 + 27 + 29 = 85
4 + 14 + 17 + 19 + 31 = 85
4 + 14 + 17 + 21 + 29 = 85
4 + 14 + 19 + 21 + 27 = 85
5 + 7 + 17 + 27 + 29 = 85
5 + 11 + 17 + 21 + 31 = 85
5 + 11 + 19 + 21 + 29 = 85
7 + 11 + 17 + 19 + 31 = 85
7 + 11 + 17 + 21 + 29 = 85
7 + 11 + 19 + 21 + 27 = 85

Page 59A

5 + 7 + 17 + 31 = 60
5 + 9 + 15 + 31 = 60
7 + 9 + 19 + 25 = 60
9 + 15 + 17 + 19 = 60

Page 59B

7 + 14 + 29 + 34 = 84

Page 60A

3 + 11 + 24 + 33 + 45 = 116
8 + 11 + 19 + 33 + 45 = 116
11 + 17 + 19 + 24 + 45 = 116

Page 60B

1 + 5 + 7 + 27 + 31 = 71
1 + 5 + 15 + 19 + 31 = 71
1 + 7 + 11 + 21 + 31 = 71
1 + 7 + 15 + 21 + 27 = 71
1 + 9 + 11 + 19 + 31 = 71
1 + 9 + 15 + 19 + 27 = 71
5 + 7 + 9 + 19 + 31 = 71
5 + 7 + 11 + 21 + 27 = 71
5 + 9 + 11 + 15 + 31 = 71
5 + 9 + 11 + 19 + 27 = 71
5 + 11 + 15 + 19 + 21 = 71
7 + 9 + 15 + 19 + 21 = 71

58A–60A

Critical Thinking In Mathematics Books from Critical Thinking Press & Software

Call 800-458-4849 for our free detailed software catalog!

CRITICAL THINKING ACROSS THE CURRICULUM

INFUSING THE TEACHING OF CRITICAL AND CREATIVE THINKING INTO INSTRUCTION (Methods for grades K–12) turns content lessons into direct instruction in the skills and processes of critical and creative thinking. Sample lessons in core content areas and activity sheets help teachers construct their own infused lessons.

ORGANIZING THINKING – Graphic Organizers (grades 1–3 and 4–7) are designed to integrate higher order thinking skills across the curriculum. The books are easy to use and everything is included: lesson plans, background information, graphic organizers, and suggested answers. The lessons cover writing, math, science, language arts, social studies, enrichment, and personal problem solving.

BUILDING THINKING SKILLS® books (grades K–2, 2–4, 4–7, 7–12) provide easy, inexpensive, effective activities in verbal and figural similarities and differences, sequencing, classification, and analogies. The activities are based on class discussion for maximum transfer across the curriculum. Nine years of outstanding test results at all ages, abilities, and socioeconomic levels support the quality of this series.

MIND BENDERS® (grades K–2, 2–6, 6–10, and 10–12) sharpen students' deductive thinking skills by encouraging them to comprehend and organize sets of clues—some direct, some indirect—to reach logical conclusions. Skills developed and utilized within the series improve students' reading comprehension, math, writing, science, and test-taking abilities at all grade and aptitude levels.

CRITICAL THINKING IN MATHEMATICS

MATHEMATICAL REASONING through Verbal Analysis (grades 2–4 and 4–8) offers a thinking and discovery approach to teaching mathematics. The reasoning skills students learn provide an invaluable foundation for the study of high school mathematics.

CRITICAL THINKING ACTIVITIES FOR MATHEMATICS (grades 3–4, 5–6, 7–8, and 9–12) presents many kinds of problems—some mathematical and some logic/verbal reasoning problems. All of these problems help students develop the wide range of critical thinking skills needed to succeed in mathematics. Ideas are always introduced clearly and with simple examples.

MATH-O-GRAPHS (grades 4–8) teaches students how to use and develop graphic representations to help organize and solve all types of problems—across 14 major areas of the math curriculum.

CLOUDBURST OF CREATIVE MATHEMATICS ACTIVITIES (grades 2–5 and 5–7) offers zero-budget, reproducible, hands-on activities that take students beyond basic facts, addressing the NCTM Standards for logical thinking and problem solving. CLOUDBURST is ideal for math labs and homework assignments.

ALGEBRA WORD PROBLEMS are an ideal math department resource! These eleven reproducible word-problem books range from Pre-algebra to Algebra 2 and emphasize process. Each concept is arranged so that the easiest problems come first.

ALGEBRA MAGIC TRICKS: ALGECADABRA! Volumes 1 and 2 (grade 7–college) get students excited about algebra! Students enthusiastically engage in algebraic analysis as they get caught up in the excitement of uncovering how the number magic works. All algebra can be performed by first-year algebra students, and many of the tricks can be adapted for pre-algebra students.

CRITICAL THINKING QUICK MATH ACTIVITIES

MATH MIND BENDERS® books and software (grades 3–5, 4–7, 7–10, and 9–college) offer stimulating games that represent a gold mine of reasoning! Using inductive and deductive reasoning, students examine the data presented, looking for possible patterns, reasonable assumptions, possible inferences, and possible conclusions to reach a solution. The analytical skills students learn are necessary for success in higher mathematics and across the curriculum.

BRAIN STRETCHERS (grades 5–9) is a two-book set of puzzles with a variety of math and logic activities. Each book is divided into three categories: logic, patterns, and puzzles. The activities require a great deal of thinking but little reading. The one-page problems are useful for independent work, motivation, end-of-period slots, and enrichment.

CLASSROOM QUICKIES (grades 6–12) is a three-book series of classic mathematics and logic teasers. It is ideal for those days when your lesson plan does not quite cover the class period.

SCRATCH YOUR BRAIN WHERE IT ITCHES (grades 1–3, 3–6, 7–9, 8–12, and 9–12) exercises your students' mathematical reasoning abilities and critical thinking skills with an exciting series of games, tricks, and quick activities in mathematics, algebra, and geometry.

CRITICAL THINKING CALCULATOR ACTIVITIES

CALCULATOR CONUNDRUMS (grades 5–9) are not ordinary calculator problems! These "conundrums" are activities that encourage students to explore math, history, science, and creative reasoning as they become more adept calculator users. Each activity presents a riddle followed by questions that are both fun and challenging.

LEARNING THE GRAPHICS CALCULATOR – Casio (grades 6–college) explores the use of the Casio 7000 graphics calculator. Step-by-step instructions simplify and demystify the use of this powerful mathematics tool. Using illustrations and detailed instructions, this book takes you from turning on the calculator to creating graphs, writing programs, and solving problems.

Call 800-458-4849 to receive our current catalog of Critical Thinking books and software in Language Arts, Mathematics, Science, Social Studies, and Ethics for grades K–12.

MP 7.01

11 — 00 99 98 97 96 95 94

Printed in the United States of America